

The UNISEC-Global 37th Virtual Meeting

September 16, 2023, 22:00-24:00 (Standard Japan time GMT +9)



The following report was prepared by UNISEC-Global Secretariat

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1. Opening Remarks

Jyh-Ching Juang, National Cheng Kung University

Professor Jyh-Ching Juang received the B. S. and M. S. degrees from National Chiao-Tung University, Hsin-Chu, Taiwan, in 1980 and 1982 respectively. He did his PhD in electrical engineering from the University of Southern California, Los Angeles, in 1987. He was with Lockheed Aeronautical System Company, Burbank before he joined the faculty of the Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan in 1993. His research interests include satellite navigation and control, sensor networks, GNSS signal processing, and software-based receivers. He is coordinating a nono/micro-satellite development team at National Cheng Kung University.



Pictured: Dr. Jyh-Ching Juang giving the opening remarks

<u>Highlights:</u>

- Talked about UNISEC-Taiwan's involvement in contributing towards the incubation of space talent
- Human resource is the most important element in any sector
- We are in a new space era; Space 2.0 is marked by lots of new initiatives coming up
- More than 1000 projects are launched each year
- Different new ideas including satellite constellations are being proposed
- The upcoming projects should be able to co-exist and inter-operate
- A new trend can be seen in production technology in terms of satellite development
- Digital resilience and cybersecurity have become essentials for upcoming all satellite programs
- From Taiwan's perspective, human resource is crucial
- Taiwan plans to invest in talent to ensure sustainable development
- This session brings forward a package where young generations will be presenting
- Taiwan has established four institutions of space this year for master's level programs
- Taiwan government has also sponsored many programs in Taiwan's space industry
- Further participants would also discuss the satellite projects being conducted by Taiwan

2. Presentation on "From Ground to LEO: Unleashing Potential in Taiwan's Space Professionals"

Tsun-Li Chao, Institute for Information Industry

Tsun-Li Chao worked in the railway and medical sectors from 2014 to 2023 before venturing into space industry through the Institute for Information Industry in December 2022. She currently holds the position of Associate Planner. Her responsibilities include talent acquisition and space industry supply chain development program.



Pictured: Tsun-Li Chao provides an overview of the Taiwanese Space Industry

<u>Highlights:</u>

- Current strategies and initiatives used for space ecosystem development for Taiwan
- Space science is a new topic in Taiwan but has shown significant development growth
- Strong government support especially in educational training and policies making
- Conduct space industry supply chain development programs by:
 - Assisting businesses with international and global abilities
 - Cultivating space talents
 - Engaging talented youths with resources
 - Helping the industry to work with manpower
- Challenges faced:
 - Lack of a clear career path
 - Limited hands-on opportunity
 - Brain-drain (especially in fields of antenna radio frequency and integration of ground system)
 - Salary competitiveness as compared to the semiconductor industry
- Opportunities available:
 - Educated science and engineering workforce
 - Expertise in the IT sector
 - Taiwan's satellite supply chain for global entry
- Taiwan has an innovation-friendly entrepreneurial culture
- Working to develop competitive space projects and manufacture competitive
- Growing demand for space service and application
- Taiwan's proficiency in supply chain contributes to space culture's global development
- Three categories of learners' group division:
 - Students and cross-domain talents: (4 learning stages)
 - Preparatory workshops: Technical workshops (156 students)
 - International Camps: International Curriculum incorporating International Lectures from ESA, NASA, UNISEC (70 students)
- International camp 2023 in June, lectures from EnduroSat and Libre Space Foundation
- Three categories of learners' group division include new professionals, R&D personnel and managers
 - Study trip includes:

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- Idea exchange events and on-site visits to institute and research facilities
- 5-day trip to LA (happening this November)
 - visits and talks with space professionals from UCLA, California Science Center
- 14 companies offer 71 students with antenna tech, network communication, and radiation-related work
- R&D personnel will be provided with a personalized workshop
- Organize workshops and structured courses as needed
- This year, a total of 42 hours of technical workshop was provided



Pictured: Tsun-Li Chao talking about the 4 learning stages for students

- For Mid to high-level executives:
 - Connect with experts in the industries, key decision-makers and executives
 - Strategic discussions, Insights sharing, and in-depth exploration of the space industry, business model
 - Collective Analysis of future trends and opportunities; plan future directions
- Talent cultivation is very significant as it is not confined to just a few nations, it is a collaborative effort

3. Presentation on "RunSpace Innovation Challenge – Overview and 2024 Prospect"

Phoebe Huang, Institute for Information Industry

Phoebe Huang is the project lead for RunSpace Innovation Challenge at Institute of Information Industry in Taiwan. The challenge first began in 2022 and is now in the second edition.



Pictured: Phoebe Huang presents about RunSpace Challenge

- The RunSpace Challenge is currently being held in Taiwan but is planned to be a global event
- Organized by Institute for Information Industry (III)
 - III is an organization formed to promote the ICT industry in Taiwan
 - III works in marketing to intelligence aspects

- III has dedicated professionals to governmental space programs
- III encourages talent cultivation and industry development
- Missions are focused on:
 - Boosting Taiwan space tech and increasing market value
 - Initiating strategic collab with companies based in Taiwan and international firms
 - Cultivating talent through domestic and global resources
- The first Innovation Challenge happened in 2022
- 6 months, 48 teams with 126 participants
- Winner teams had projects related to HUI System Hyper COMM, space janitor, and space radiation
- Projects were diversified from satellite manufacturing to satellite service
- 2023 run space innovation challenge briefing:
 - 76 teams with 176 participants; 14 teams to enter the final stage
 - Challenge focuses on ground station and service, satellite design and service, launches
 - Cash prize for winners
- The team met with partners, shortlisted participants, and submitted projects during the first half year
- Currently, the team is ongoing space boot camps, global meetups, seminars
- New topics including space pharmacy, agricultural and microgravity experiments, space cleaning
- Eligible to companies, students, and nonstudents; anyone with ideas with minimum technical abilities
- The team should be of 1-5 members and 2 advisors (optional)
- Aims to gather different people from different backgrounds
- Judged on the basis of innovativeness, future influence, Problem-solving, and business potential
- Project pitching and product demonstration to judges on the scene (finals, the coming month)
- RunSpace outlook for 2024 aims to
 - Go big, go global
 - Bring together diverse backgrounds look for participants, strategic partners
 - Contribute to global talent cultivation



Pictured: Ms. Phoebe Huang talking about the 2023 Contest Timeline

Q and A:

Q: Who supports this contest financially? Do students need to cover some costs?

Actually, the fund is from IDB which is one of the governmental organizations in Taiwan. However, the prizes are from sponsors which are primarily business identities. The student does not have to cover any costs except the transportation cost to Taipei where the finals happen. The program is free of cost for students.

Q: Do you anticipate that the industrial partners will pick up the idea? Are there any existing examples of how the industry engages with those teams?

Yes, actually being able to pick up the ideas. Our largest sponsor is Chunghwa Telecom which is the largest company in Taiwan so this year if you are labeled as the golden sponsor, you will definitely be able to come up with specific teams with certain winning criteria or bring participants working on your organizational benefit topics. For instance, they can pick any team from the 14 teams and give the teams a special prize specifically from them. So, during the award ceremony, the companies will be able to deliver the prize

Q: Are international participants welcome?

Yes, of course. This year, we have about 8 to 10 teams that are based in Taiwan but are foreigners and foreign students who study in Taiwan. Moreover, the finals are in English so this can be one of the advantages since we won't only use Mandarin, and next year, since we are going global, we will be calling participants from all around the world

4. Presentation on "Qisda Space Partnership Framework and Academia Cooperation"

Albert Weng, Qisda Corp.

Dr. Albert Weng has over 20 years working experience in new business development, sales and marketing. He is an expert in Profit and Loss (P&L) responsibility from local system integration to global brand business mainly in networking and technology industries. He has had business executive experience across a variety of technologies from network security, network storage, network (IP) video surveillance, interactive flat panel, digital signage with a number of years as expat executive in the State for North America as well as Latin America business. Most recently, he works as deal maker for investment as Corporate Venture Capitalist (CVC) for the BenQ Group at Qisda Corp., covering the target partners from listed enterprises and startups for alliance development through Mergers & Acquisitions (M&A). He also works as an adjunct lecturer on Entrepreneurship and Marketing at the School of Management, National Taiwan University of Science and Technology (NTUST).



Pictured: Dr. Albert Weng during his presentation regarding Qisda's recent space initiatives

- Qisda- A company with 2 years of work experience in the space business
- Considered one of the fastest movers in Taiwan's technological industry

- Due to technological advancement, product development in the satellite business is beneficial
- Many opportunities are available but are still considered small
- Started as research purposes and then turned to commercial use of space
- Brings up national security concerns when space technology is involved
- Constellation satellites rising in huge number
- Also shifting to service to consumers; either B2B or B2C
- Space is not just a science project but also a business
- Lots of challenges: always a concern regarding the return on investment and attracting investors
- Business integration is an issue for operators
- Constellations will help the integration to a certain degree
- Capital support is very important for the government
- In need of resources that can contribute to integrations
- Universities and educational institutions have pioneers in the field of engineering and space technology
- Qisda space partnership global presence ranging from R&D manufacturing to service centers
- In the future, looking at the development of 5G and 6G communication
- Space business contributes to the whole technological ecosystem rather than one single business unit
- Studies the market together with other manufacturing company, incorporate resources, and builds tech
- Space fleet innovation arm; Rapidtek based in Taiwan
- Manufacturing arm
 - Alpha Networks in Vietnam, Taiwan, and China
 - Hitron Tech US and Vietnam
- Integration arm IDT
- The framework includes industry partnership and academic partnership
- Qisda aims to support startups or medium-sized businesses through the GET Initiative

Collaboration

GET Initiative for Space Collaboration



Pictured: Dr. Weng introduces GET Initiative

- GET Initiative:

- G: Generation:
 - The young generation should be able to envision the space industry as a career
 - Satellites are different from 10-20 years ago, seniors need to open to new ideas
- E: Entrepreneurship:
 - Connect entrepreneurial companies with each other for growth
 - Everyone innovates in a new way; specially with the new set of innovative ideas
 - They need to incorporate a mindset of entrepreneurship
- T: Transformation:
 - Aspire to go global; knowing why going global is important.
 - Bring technological development and architect of systems design with support

- Partnerships for a solution; fighting as a global team
- Opting to tying to propose a solution to the customers is important
- The team is eager to invest with recent investment of more than 10M in one company
- Aims to encourage companies and universities to contribute to align and make space a better industry
- UNISEC local chapters such as UNISEC-Taiwan can help with "integration"

5. Presentation on "A New Approach for Promoting the CubeSat Market in Taiwan"

Chia-Ray Chen, Taiwan Space Agency

Dr. Chia-Ray Chen received the Ph.D. degree from the Institute of Aeronautics and Astronautics, National Cheng Kung University, Taiwan. Since October 1995, he has been working with the National Space Program Office (now Taiwan Space Agency), Taiwan. He was the Director of the Mechanical Engineering Division, TASA, from 2008 to 2019. He has been promoted to the position of the Formosat-8 Program Director, since 2019. His research interests include the areas of satellite system engineering, optical remote sensing instruments, satellite image applications, and satellite thermal control design.



Pictured: Dr. Chia-Ray Chen during his presentation

- Most of the satellites in space are funded by government and are not for commercial purposes
- In recent years, commercial satellites have dominated the satellite industries
- More constellations are being formed like Starlink, OneWeb
- Most of the LEO satellites are huge and heavy and can provide equally good services
- CubeSats are cheaper, faster, easier to deploy constellation of CubeSats
- In 2017, the initiative CubeSat program was launched:
 - A 5-year program, 3 CubeSats of 3U, 2U and 1.5U CubeSats
 - After 5 years, these 3 satellites were launched back in 2022
 - Learned valuable lessons and opened doorways for more CubeSat activities
 - More than 80% successful in local space industry field overall
- Success in technological advancement is about 39%
- How to promote the space industry?
 - Satellite components that Taiwan has proficiency in building
 - Must be installed in a bus platform which can be a challenge
- There are lots of flight-proven components so the new component is hard to be competitive
 Satellite system as a product is a challenge for the local company:
 - National Science and Tech Council funded the Pathfinder of the startup CubeSat program:

- 2U or 3U CubeSats with communication and remote sensing missions since 2022
- Anticipated to be launched in the middle of 2024
- 2023 2026 communication, IoT, and remote sensing CubeSat mission
- Startup CubeSat program 2022-2031 budget includes designing to manufacturing, launching, operating
- TASA looking to help local companies with the capability of good commercialized business models
- TASA passes on knowledge of their potential markets

6. Presentation on "Introduction of Taiwan Space Generation: Vision & Mission"

Andie Wang, Taiwan Space Generation

Established in 2023, Taiwan Space Generation (TSG) is a non-governmental organization initiated by young space enthusiasts in Taiwan. TSG hopes to gather the energy of Taiwanese youth in the space field through cross-disciplinary professionalism and enthusiasm for space affairs, and together understand them from multiple perspectives, and explore the vast realm of space. Andie Wang is a space enthusiast and the spokesperson of TSG.



Pictured: Prof. Maeda of UNISEC-Global with TSG

- A new organization established this year (2023)
- Focus to integrate youths from different backgrounds with a strong passion for space
- Roughly 20 members as of September 2023
- Fresh perspectives from different academic backgrounds from law to engineering to economics
- In 2022, TASA had Taiwan Young Space Professionals Program (TYSSP):
 - a week's program talking about space affairs in a broad aspect
 - Taiwan Space Generation was born when like-minded individuals met here
- Currently has major social media presence
- Started from a group of six and are continuing to grow
- Vision to be represented as the youth platform for Taiwanese space affairs locally and globally
- Vision to get connected with as many professionals in the field as possible
- Focused in bridging the gap between the general public/ youth and space institutions
- Focused on bringing in space-diversified discussion
- Sharing space news and engaging youths through space affairs advocacy



Pictured: Ms. Andie Wang introduces Taiwan Space Generation

7. Announcement and Acknowledgement

Haruka Yasuda, UNISEC-Global





Pictured: Yasuda-san announcing the latest updates from UNISEC

- CLTP 12 (CanSat Leadership Training Program) Completion Announcement

- Program Date: August 21, 2023 September 1, 2023
- Venue: Nihon University, Chiba, Japan
- 17 trainees from 13 countries
- Website: http://cltp.info/index.html, contact info: secretariat@cltp.info

- Mission Idea Contest (MIC8)

- 10 finalists and 2 semi-finalists were selected based on the paper submissions
- Final presentation will be November 29, 2023 during 9th UNIGLO Meeting
- Will be broadcasted online
- Register here: http://www.spacemic.net/application.html
- Contact info: info@spacemic.net

- 9th UNISEC-Global Meeting

- Venue: X-Nihonbashi Tokyo, Japan, in-person event
- November 27 December 1, 2023
- Collaboration with Nihonbashi Space week

- The website has been updated

- J-Cube Announcement

- Special discounted launch opportunities
- 1U, 2U, 3U size options
- Deployment from the International Space Station
- Collaborate with UNISEC Japan's University
- Technical support will be provided

- 38th UNIGLO Virtual Meeting

- Date: October 21, 2023 22:00 24:00 (JST)
- Looking for local chapters to host.
- Virtual UNISEC-Global Meetings takes place third Saturday of almost every month of 2023

8. Participant Statistics

135 registered participants from **29** countries and regions for the 37th Virtual UNISEC-Global Meeting.

Country/Region	Number of registrations	Country/Region	Number of registrations
Argentina	1	Paraguay	3
Bangladesh	4	Peru	1
Bulgaria	1	Philippines	6
Burkina Faso	17	Romania	1
Colombia	2	Singapore	1
Dominican Republic	1	Taiwan	56
Egypt	3	Thailand	2
France	1	Tunisia	1
India	4	Turkey	4
Indonesia	1	UAE	1
Japan	9	UK	1
Kenya	1	US	1
Namibia	1	Vietnam	1
Nepal	8	Nigeria	1
Pakistan	1		

Student or professional?

135 responses



Have you participated in the UNISEC-Global Meeting previously? 135 responses



Are you familiar with Taiwanese space projects? 135 responses





Thank you