THE ASIA-PACIFIC CUBESAT INITIATIVE

TAIWAN'S PROPOSAL AT APRSAF

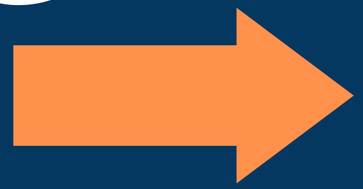
NOVEMBER 16, 2022

HUI-HUI CHOU

ABSTRACT

APRSAF

Talents



New Space

Commercial
Space Sector

Solution: Asia-Pacific Undergraduate CubeSat Initiative

SPACE EDUCATION FOR ALL WORKING GROUP (SE4AWG)

- Water Rocket Event for Education (12~16 years old)
- Poster Contest for Young People (8~11 year old)
- Space Education Seminars / Workshops for Teachers
- CanSat for Students
- CubeSat for Students and Satellite Educators (disseminating information)
- Social Media Usage

Higher Education

SPACE EDUCATION FOR ALL WORKING GROUP (SE4AWG)

25th SE4AWG Report

"ensure continuous engagement of students in preparation for their space-related careers (Sese, 2018)."

27th APRSAF Joint Statement

SPACE EDUCATION FOR ALL WORKING GROUP (SE4AWG)

APRSAF:

Continuous Engagement

Higher Education

Practical Education

Better ways?

- high-quality hands-on experience (Holstermann, 2010)
- connect students with the industry (Alnajjar, 2020)

Hands-on CubeSat Program

UNDERGRADUATE CUBESAT

SUCCESSFUL CASES

- *United States of America (Hill, 2022)*
- *Indonesia (Prahyang, 2018)*
- *New Zealand (Aglietti, 2020)*
- *Singapore (Lim, 2015)*

guaranteed funding at each step of the CubeSat design lifecycle.

FUNDING IN TAIWAN

- *The CubeSat Mission Design Contest (CMDC) by National Space Organization (NSPO):*

US$3500 in total.

Traditional Strategy

Space Agencies

Student Teams

New Proposal

Enterprises

announce challenges!

Student Teams

solve the challenges

OBJECTIVES

- Give undergraduates in the Asia-Pacific region the opportunity to develop their CubeSats with essential funds
- Advance interdisciplinary collaboration between students and businesses from different backgrounds
- Reinforce the cohesion of the community and strengthen information exchange

ASIA-PACIFIC UNDERGRADUATE CUBESAT INITIATIVE

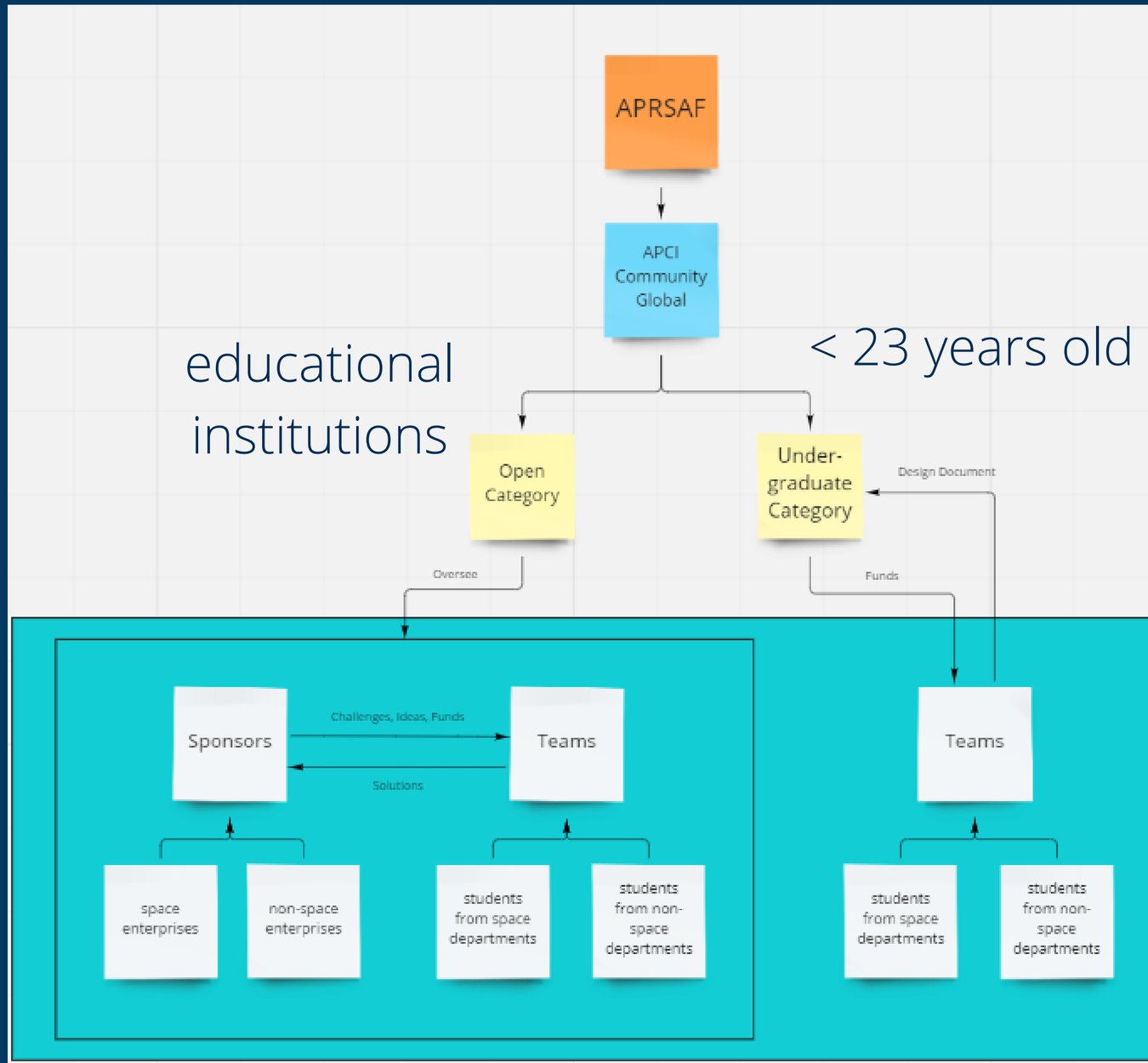
EDUCATION | ACADEMIA-INDUSTRY | INFLUENCE

APCI CATEGOIRES AND THEMES

APCI community: not mandatory

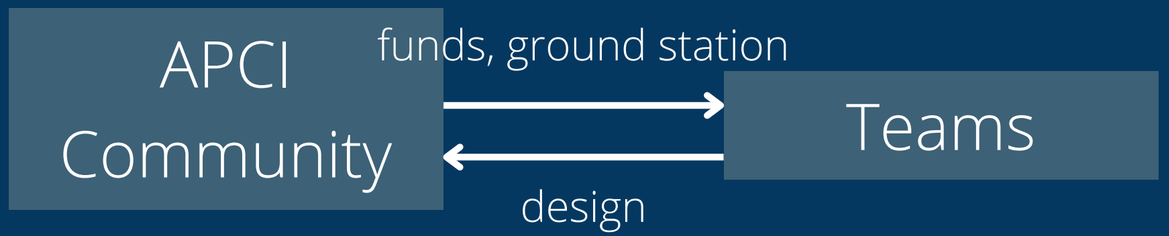
Applicant eligibility: **Both categories accept only applicants from the APCI participating countries and regions.**

Evaluation criteria will be set by the committee selected from the APCI community.



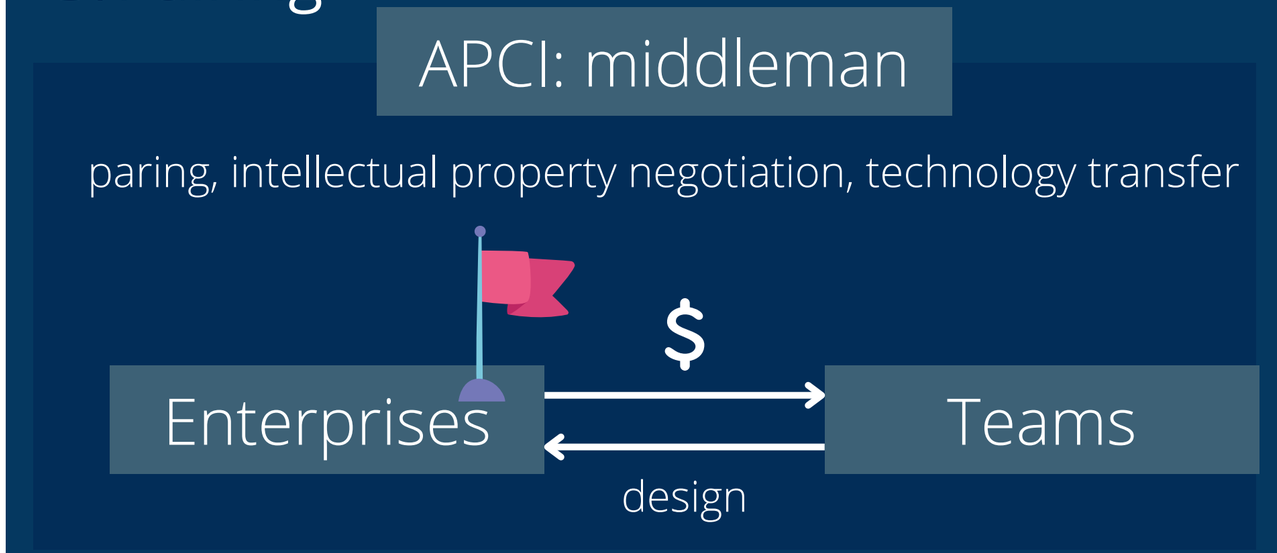
UNDERGRADUATE

1. Teams submit application
2. Competition



OPEN

1. Enterprises announce challenges
2. Competition
3. Pairing



- CubeSat design sharing
- free-of-charge ground stations

SOCIAL RETURN

Students

- INSPIRE THE NEXT GENERATION
- DIMINISH BARRIERS BETWEEN DEPARTMENTS
- INTERNATIONAL COLLABORATION IN THE FUTURE

Enterprises

- SPACE TECHNOLOGY IN DIFFERENT DOMAINS

90% SCIENTISTS SURVEYED: MANNED SPACE EXPLORATION INSPIRED YOUNGER GENERATIONS TO STUDY SCIENCE (MONASTERSKY, 2009).

SOCIAL RETURN

Nations

- REDUCE LEARNING BARRIER
- LOWER R&D COST

APRSAF

- INFORMATION EXCHANGE
- MORE INFLUENTIAL REGIONAL BODY

CASES (OPEN CAT.)

Figure 1. Operation Concept of S-AIS System for KOMPSAT-6. Copyright (c) IARIA, 2016.

AUTOMATIC IDENTIFICATION SYSTEM

Shipping agencies wondered: "We want to track our boats when they are not near the shore, can satellites help us with this?"

Figure 2.Celetis Space Burial ©1994-2022 Celestis, Inc.

SPACE BURIAL

Traditional funerary services asked: "We want to expand our business to space burial. The offsprings want to see the urn displayed with Earth as background so that they can pay respect. Can someone help us design the CubeSats needed?"

CONCLUSION

a feasible mechanism to:

- benefit APRSAF
- promote academia-industry partnership
- attract funding linked to other technologies

Ensure continuous engagement of students in preparation for their space related careers

Interdisciplinary cooperation

Commercial application

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THANK YOU FOR YOUR LISTENING

APRSAF

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