

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
In Orbit - Postgraduate Space Education (4)

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FRAMEWORK FOR A TRILATERAL-BASED NETWORK TO SUSTAIN SPACE ACTIVITIES IN
EMERGING AND DEVELOPING SPACEFARING NATIONS**Abstract**

In 2015, Kyushu Institute of Technology (Kyutech) initiated the Joint Global Multi-Nation Birds Satellite (BIRDS) program. The program's mission statement is to "make the first step toward creating an indigenous space program by designing, building, testing, launching, and operating the first satellite for participating nations". This is achieved by enrolling, in Master or PhD course, graduate students from non-spacefaring or emerging spacefaring nations, who will develop from mission design to on-orbit operations a 1U CubeSat. But, after graduation, what's next? How do the freshly graduated students can keep the momentum and actually establish indigenous space program in their home country? To answer these questions, the needs to establish sustainable space activities in emerging or developing spacefaring nations should be identified. The primary need is the development of a multi-disciplinary skilled space workforce. The secondary need is an indigenous industry supporting the development and operation of space activities. The tertiary need is to connect space activities by-products with the needs of a nation's society. All these needs cannot be addressed by Kyutech, or any other university, since it is outside the scope of a university's objectives. Similarly, a space agency, or any other governmental entity, cannot address these needs. Hence, only a company has enough flexibility to address the three needs by its capability to deal with either academic, industrial, or governmental entities. From this reasoning, Solace ONE, LLC, was created as a spin-off company from Kyutech. Through the synergy of Kyutech's capacity building programs, such as the BIRDS program, and Solace ONE, continuous space activities in emerging and developing spacefaring nations can flourish. This allows the growth of a skilled space workforce not limited to the few students yearly graduating, which lays foundation to not only carry out satellite projects, but also develop space-oriented industries, and overall sustain space activities at large. The paper presents the framework for a trilateral-based network to sustain space activities within and by emerging or developing spacefaring nations. Within this framework, the paper also describes the efforts undertaken by Kyutech and Solace ONE's partners to address the needs and problems their nation is facing and their associated results. From this work, the authors aim at fostering, encouraging, and promoting emerging and developing spacefaring nations' relentless efforts and initiatives in pursue of achieving sustainable indigenous space activities for the benefit of humankind.