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UNIVERSITY PARTNERSHIPS AS A MODEL FOR CAPABILITY BUILDING IN EMERGING SPACE NATIONS

Abstract

Organizations within many developing countries are identifying space and small satellite technology as priority areas in which to increase their local capability. Satellites provide valuable public services in the areas of earth observation, communication, positioning, timing and scientific research. Small satellite projects are also an opportunity for universities and government agencies to foster goals in educating students, stimulating innovation, enhancing the capability of local firms, pursuing strategic international alliances and fostering national pride. As a nation that is new to space begins early activities with small satellites, it is valuable to develop partnerships with more experienced space nations that can provide mentorship. Such partnerships come in a variety of models, including political agreements between governments, commercial contracts with firms and educational agreements with universities. Each of these models has benefits and weaknesses; each may be appropriate for an emerging space nation depending on their local context, objectives and stakeholder needs. This paper considers the opportunities and challenges facing developing nations that harness international university collaborations with more experienced space nations as part of their strategy to increase local capability in small satellites. Specifically, the paper presents examples of university programs led by the Kyushu Institute of Technology, which is serving as a mentoring partner to many developing countries that are starting small satellite programs.

The university partnership model is particularly appropriate for a nation that seeks a long term process of capability building that fosters education and the maturation of new space-related agencies, firms or university programs. The Space Engineering International Course of the Kyushu Institute of Technology is an example of a program offered by a mentor nation that supports such goals. This paper describes the educational and technical components of the Space Engineering International Course (SEIC). The discussion provides several examples of experiences within the SEIC program. The SEIC exposes students to academic education, hands-on satellite programs, international teams and professional development opportunities. The paper provides advice to leaders of universities and space related agencies in less experienced space nations as they consider how to best take advantage of international university collaborations. At the same time, the paper addresses university leaders in more experienced space nations, highlighting models and techniques that will help them build mutually beneficial and sustainable relationships as a mentoring partner.