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VPNI PROJECT: INNOVATION AND DEVELOPMENT THROUGH INTERNATIONAL COOPERATION

Abstract

The VPNI project aims for the development of a modular nanosatellite bus (PlugPlay), which offers a flexible solution that can be adapted to several payloads, thereby offering a cost-efficient solution to accelerate the production of a platform. This project has been funded between the Mexican Research Council and the private sector, the technical background has been driven by the Mexican Talent Network (RDTM) and Open Cube Initiative (OCI).

This way the RDTM has gathered a working group involving the dynamics of the triple helix University-Industry-Government through a framework of several institutes and NGOs from Mexico and abroad. Thanks to VPNI the know-how and lessons learned of successful nanosatellite missions came to a group of committed young engineers aiming to start a career in space opening them the path to a field quite new in Mexico, offering space-related jobs, thesis opportunities as well as several indirect jobs, and this trend deems to continue for the following years.

The international cooperation and the intermediate results of developments were catalyzed through a series of Workshops in the end of 2013 that happened during the design review that involved all the partners, researchers and interested parties from Mexico and abroad. Some activities involved refining the plug-and-play bus specifications, hands-on activities led to prototype assembly and testing in simulated environment and discussion sessions lead to scientific and engineering requirements redefinition.

We describe the technical outcome of the VPNI workshop, and focuses mainly on the efforts that VPNI has done in terms of international collaboration as well as the strategies to overcome several barriers such as the management of a complicated framework from abroad. We also present the organizational techniques and resource management to achieve results in a scenario with limited resources compared to that of big space projects.

The development of this project is certainly core for the Mexican space development, and it will help for the creation of low-cost satellites in the medium-term. Coming to a new standard or a new working group is certainly not a goal of the VPNI project. The main objective is to contribute to the space community with an innovative solution that is flexible, designed to manufacture and that requires less validation efforts and increases the success of nanosatellite missions. Certainly, this can only be accomplished by increasing the international framework through global partnerships.