

BUSINESS INNOVATION SYMPOSIUM (E6)  
Entrepreneurship and Investment for Commercial in-Space Activities (2)

Author: Mr. Kei-ichi Hirako

Japan Aerospace Exploration Agency (JAXA), Japan, hirako.keiichi@jaxa.jp

Mr. Koichi Inoue

Japan Aerospace Exploration Agency (JAXA), Japan, inoue.koichi@jaxa.jp

Dr. Hiroshi Tachihara

Japan Aerospace Exploration Agency (JAXA), Japan, tachihara.hiroshi@jaxa.jp

Dr. Yosuke Nakamura

Japan Aerospace Exploration Agency (JAXA), Japan, nakamura.yosuke@jaxa.jp

NEW CONCEPT ABOUT CONTRACT WITH MICRO INDUSTRY OR SMALL ENTERPRISE  
WILLING TO COMPLETE IN THE SPACE DEVELOPMENT BUSINESS

**Abstract**

Space Technology Demonstration Center ( STDRC ) of JAXA stated Small Demonstration Satellite (SDS) program on 2006. The purpose of this program is to demonstrate new technology such as component, electrical parts and so on. SDS is small satellite around 50 to 100kg class, and developed with in-house activity of young engineers of JAXA with low cost and quickly and also, launched as a piggy back satellite of H-2A launch vehicle. The first satellite of SDS program, which is called "SDS-1", had been launched on 23rd January 2009 and terminated its operation with extra success exceeding planned on-orbit demonstration. Now, next satellite called SDS-4 is ready to launch with H-2A.

Bus components of SDS are based on COTS parts or units. In order to develop the bus components in low cost and short time, STDRC makes contract with micro industry or small enterprise. Micro industry or small enterprise, who have no experience in development of units or components for space use, have imaginations, for example "Development of equipment for space use requires high technology and strict control for quality assurance" "Development of space equipment has very high risk in business and investment." It is much danger for these small industry to take risk for beginning space business. Therefore, relating with contract, it is necessary to reduce the risk to small industry.

Considering their prejudice for space activity, risk to small industry and effect of JAXA's in-house activity, STDRC applied new concept of contract, and succeeded in development of components for small satellite with low and short period with moderate quality such as monitor camera and so on. In this paper, prejudice for space activity on small industry is mentioned. Then, based on the prejudice, a type of new concept of contract or collaboration with micro industry or small enterprise is described with some examples realized in SDS program. This approach is effective in spreading the range of micro and small industry and activate the space development.