

NewSpace Trends Bring High Potential for Creating Suborbital Markets in Japan

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Now space commercialization is a big wave all over the world. Smallsat constellations have brought a manufacturing revolution and scale merit into space as well as creating innovative technologies and applications. 3D printing in space and manufacturing in space has been started, which will enable the assembly of large space structure in orbit. Killer apps from microgravity expect to contribute to our quality of life as well. Reusable vehicles, on-orbit servicing, next-gen propulsion and so on also have contributed to a technology revolution. Furthermore, new technologies which connect space based data information with big data, cloud, IOT, and AI; what is called digitalization. Now the space commercialization wave has been expanding to beyond LEO business creation. A new business ecosystem to use space is expected to create and broaden a borderless industry blast off for space commerce. It can be said that Space 4.0 has begun.

Many of these new technologies and applications are core competencies for Japanese industry. In Japan, the space commercialization big wave has finally come. New players have entered the sector such as space venture companies, non-space companies and even venture capital investors. Furthermore, traditional space companies are seeking global space competitiveness and have started new space businesses to capture new markets using space. Several space venture companies have gotten a certain amount of funding for their businesses. According to Start-up Space by Bryce, VC's in the world which invest in space start-ups now totals 439 and Japan is the third country even the number is small compared to the US which is 63%. Non-US VCs, which invest in space start-ups are 163 in 32 countries. The first is UK with 25 VCs which is 15% out of non-US. The second is Japan with 19 VCs. Japan is rapidly getting active for space venture companies with VC's investment.

Two new commercial space laws have been passed in 2016 that have driven space commercialization in Japan, and the Space Industry Vision 2030 which followed was issued in May 2017. These are expected to open the door for commercial space activities and create and broaden the space markets. These are all for encouraging suborbital space vehicle utilization markets which covers B to B, B to C, and even B to G. Suborbital vehicles will bring a variety of brand-new utilization and these are happening in Japan. This paper will describe new suborbital and orbital commercial vehicle developments and space utilization projects in Japan and the government policies that are encouraging new commercial space utilization and economic development.