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Access to Space for Small Satellite Missions (5)

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LESS IS MORE: THE EMERGENCE OF NANOTECHNOLOGY, CUBESATS AND SMALL LAUNCH
VEHICLES

Abstract

The landscape of space is rapidly changing to embrace a variety of actors in increasing numbers. CubeSats are attracting an emerging group of space actors who are eager to benefit from space based data and services. Not only does this trend provide an affordable on ramp for new actors such as academia and emerging nations, it also enables visionaries to realize a closing business case for continual global coverage. Nanotechnology is the key advancement that enables more to be packed into less. As such, CubeSats can now do much of the work of their larger predecessors yet require much less throw capability and volume to orbit. Currently, the launch market is saturated with large launch vehicles and trending larger. A handful of companies, however, are looking to develop smaller launch vehicles in hopes to capture the growing CubeSat market and provide flexibility over secondary payload options. This paper looks at the enabling characteristics of nanotechnology, challenges associated with small orbital launch vehicles and the potential impact to the current launch vehicle market. Ultimately, as space becomes more accessible to more actors, the benefits from space-based platforms can be realized by more actors for expanded applicability, visionaries welcome.