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SMALL LAUNCHERS - 2021 INDUSTRY SURVEY AND MARKET ANALYSIS

Abstract

Small launcher field is continuing to boom, but some sceptical press has begun. Rocket Lab has performed very well since achieving orbit in early 2018 with over 16 launches, fast-paced reusability developments and plans to start launching from the US in 2021. With Astra, Virgin Orbit and Galactic Energy having made their first orbital flight attempts and Firefly to do so soon, new actors have also become operational.

NewSpace Index (www.newspace.im) has tracked small launch vehicles in development since 2016. There are over 150 entries as of now, while there were approximately 30 rockets in the database at the end of 2016. With a few exceptions, focus is on new private rockets that were, are or will be available on the worldwide commercial launch market. In this industry survey, small rocket is defined by being able to launch up to a 1000 kg payload to a 700 km SSO orbit.

First half of the paper will present the statistical overview of small launchers. Will be reporting about development status, payload performance, first orbital launch years and delays, development years, launch costs, geographical distribution, reusability plans, launcher types and funding amounts where available. Attempt will be made to deduce some trends in technologies and approaches based on the founding years. For example, a few years ago there were expectations that most small launchers will also offer notably cheaper price per kilogram, but this has not yet turned out to be the case, with the only exception being the very recent RFA announcement.

Second part of the paper will focus on small launcher market size, trends and competition. Will perform literature review of market studies and forecasts, compare with subsequent real-world data and discuss some claims in a wider context. With the launch of SpaceX Transporter-1 rideshare mission, large rockets have made a strong statement and competition is increasing. Orbital transfer vehicles have also become operational during the previous year, which are now challenging the specific orbit benefit of dedicated small rockets. At the same time, the number of small satellites is increasing rapidly too and analysis will be made about the growth of accessible market.

With Relativity Space raising $500 million series D round and Astra planning to go public, the one certainty is that the next years in the small launcher industry will be compelling and outcomes difficult to predict.