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Access to Space for Small Satellite Missions (5)

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SMALL UK LAUNCHER MARKET POTENTIAL

Abstract

While on average, existing launcher manufacture can take 2 to 3 years, microsatellite manufacture takes only 1 or 2 years and CubeSat manufacture even less, from a few months to 1.5 years. While the cheapest announced small launcher cost is about 4.9m US dollars at present (as supposedly quoted by Rocket Labs for their Electron launch vehicle), a CubeSat may cost as little as 30k US dollars to develop. Since small spacecraft production cycles are significantly shorter than that for launchers, whilst also being significantly cheaper, the present trend sees a growing backlog of small spacecraft awaiting launch. As a result, there is a shortage of launches for small spacecraft. Lagging launcher production is currently a bottleneck for small spacecraft reaching orbit in a timely fashion. In such a situation, there is an ever growing demand for small spacecraft launches and launchers. This demand is further heightened by the current constraints small spacecraft manufacturers face with existing rideshare launch options. Although cheap, the shortfalls of small spacecraft launching alongside larger more expensive spacecraft (for which the launches are usually manifested), are that the larger primary spacecraft dictates the orbit and launch schedule with rideshare customers hoping this roughly coincides with their own mission requirements. This ever increasing launch gap, coupled with the compromises small spacecraft manufacturers must make for rideshare launch, is therefore creating a market demand for smaller, faster produced, dedicated launchers. However, assuming that rideshare will on average be cheaper (with regards to specific launch price, usually represented in US dollars per kg) there will be fierce competition amongst small launch vehicle operators to be as cheap as possible. The prospects for the market potential for the small launch vehicle operating from the UK launch site are assessed over the 10-year time frame of 2020 – 2030. The main output displays this predicted market potential as the number of commercially supported launches to occur per year throughout the assessed time frame.