SpaceX is an American aerospace manufacturer and space transport services company founded by Elon Musk in 2002 to revolutionize space transportation, with the ultimate goal of making life multiplanetary by designing, manufacturing and launching the world’s most advanced rockets and spacecraft

Reusability Following the end of the Space Shuttle and the beginning of the EELV program, designing reusable rockets was no longer a priority. Musk reasoned that “throwing away multimilliondollar rocket stages after every flight makes no more sense than chucking away a 747 after every flight.”22 To Musk, reusability would be a key lever in generating commercial activity in the industry since, “the reason there is low demand for spaceflight is because it’s ridiculously expensive…the problem is that rockets are not reusable

Reliability without over-engineering Launch vehicles tended to be intentionally over-engineered, in part because reliability was a much greater priority than cost for defense payloads

Vertical Integration According to Harry Jones, a research analyst at NASA, ULA had “hundreds of subcontractors that have dozens of facilities spread all over the country, which [was] a political necessity for a government funded jobs program.”26 ULA’s Atlas V used three different kinds of rockets tailored to a specific phase of flight. While the use of three rockets in the same vehicle could optimize performance, as Musk remarked, such a system was highly costly, “to a first-order approximation, you’ve just tripled your factory costs and all your operational costs.”

SpaceX took note of the competition offered by new launch companies, with Gwynne Shotwell remarking, “one should always be aware of competition…Boeing and Lockheed dismissed the competition that we could provide a decade or so ago because they thought we would never make it…and to their misfortune, actually.” SpaceX’s response was to begin the “SmallSat Rideshare Program” in 2019, offering dedicated launches for small satellites below 200 kg on a regular cadence for $1 million a mission. According to Darrell Etherington from TechCrunch, “this is a clever way to drum up more business for SpaceX. Based on all the conversations I’ve had with space tech startups and people working in the industry, the main cap right now on activities is securing launch services. By addressing this bottleneck, and doing so in a way that offers as much flexibility as you can when dealing with rocket launches, the company could potentially capture a lot more of the commercial space business revenue it’s currently leaving on the table.”

for SpaceX, guarding its position in the small satellite launch market was a priority. Even without worrying about the threat from potential competitors, however, SpaceX would also have to rely on the sustained health of the satellite market. The current boom in launch could prove limited, as many constellations were projected to be fully deployed by the mid-2020s. EuroConsult predicted, for example, that market growth would peak in 2024 at 48%.60 Moreover, SpaceX had previously overestimated launch demand. In 2017, it forecast operating 30 to 40 launches per year in 2018. By the end of 2018, SpaceX had only launched 21 times, reaching a similar number towards the close of 2019. Looking back on those projections, Shotwell remarked, “We thought the commercial market might expand to that, I think we probably wished it had

Starlink and the Promise of Satellite Broadband

Another potential target market for SpaceX was human spaceflight, as Musk believed that—at the right price—there would be a viable market for travel to Mars