The Verge 2017 tech report card: SpaceX

SpaceX started 2017 at one of its lowest points ever. The company hadn't launched a single rocket since September 1st, 2016, when a Falcon 9 exploded on a Florida launch pad as it was being fueled. The mishap destroyed both the rocket and the satellite the vehicle was supposed to carry to space — prompting many to question the reliability of the company's hardware. But in January, just four and a half months after the accident, SpaceX was ready to convince the world that it had figured out the problem and was prepared to safely return to spaceflight again.

Its first launch on January 14th was a success, and ever since that crucial return-to-flight mission, SpaceX has shown that it has firmly moved on from the September failure. In fact, the company has had its most prolific year yet, launching a total of 18 rockets — more than twice as many missions as it conducted in 2016. That amounts to approximately one launch every three and a half weeks, meaning SpaceX seems to have finally fulfilled its long-held promise to increase its launch frequency from year-to-year.

It wasn't just flights that SpaceX perfected this year: the company's reusable rocket technology also firmly moved beyond just proof-of-concept. For years, SpaceX has been trying to save the majority of its Falcon 9 rockets after they lift off, in order to re-fly the vehicles and reduce the company's overall manufacturing costs. The company landed its first rocket successfully in 2015, but the company was still perfecting these rocket landings in 2016 and managed to lose a few vehicles during recovery attempts. This year, however, all 14 of the rockets that SpaceX attempted to land stuck their touch downs (some a little harder than others). SpaceX used to refer to these landings as "experimental," but the company

seems to have dropped that description this year.

SpaceX finally showcased flying and landing "previously-flown" rockets

Above all, 2017 was the year that SpaceX finally showcased why it has been landing these rockets all along: to fly them again. In March, the company launched its first "previously-flown" rocket and even landed the vehicle for a second time after take off. Since then, SpaceX has successfully launched four additional used rocket boosters, including one for a NASA resupply mission to the International Space Station. Even the US government has expressed interest in flying national security payloads on SpaceX's used hardware someday.

Meanwhile, the government became a crucial customer for SpaceX this year, trusting the company to send some of the most sensitive payloads into orbit for the US. Not only did SpaceX launch its first national security payload in 2017, the company also had the opportunity to launch the secretive X-37B spaceplane in September. It shows that business is booming for SpaceX, in both the public and private sectors.

how quickly things can go boom

However, the year hasn't been completely without failure for SpaceX. In November, one of the company's engines caught fire on a test stand in McGregor, Texas. The engine that was being tested was meant to be used in a future upgraded version of the Falcon 9, so the accident didn't immediately halt missions moving forward (SpaceX claims it will simply continue to fly current versions of the Falcon 9 in the interim). But it did serve as a reminder how quickly things can go "boom" in this business and potentially disrupt an entire year's worth of work.

And as always, there have been delays and cancellations. SpaceX pushed back key flight tests for NASA's Commercial Crew Program, for which the company is building spacecraft to take humans to and from the International Space Station. A robotic

mission to Mars announced last year by SpaceX is no longer happening. And once again, we were promised the first flight of the Falcon Heavy this year, a larger variant of the company's Falcon 9 rocket. But the flight has been pushed to next year – though it's not too far off in early January.

One of SpaceX's Falcon 9 rockets landing at Cape Canaveral, Florida.
Image: SpaceX

SpaceX's promises to the public are larger than ever, now. The company's executives claim they'll launch even more rockets next year, and that they will decrease the turnaround time between flights and re-flights. CEO Elon Musk also announced this year that the company will fly two tourists around the Moon in 2018 (though there hasn't been any chatter about those plans since the initial announcement). And in September, Musk gave an update about his plans to colonize Mars, which now include plans to start a base on the Moon, as well. He also argues the company's future Mars rocket, the BFR, could be used not just to go to space, but to take passengers to and from different locations across the Earth.

Elon Musk has always talked a big game
Of course, Musk has always talked a big game – and many like to argue that the CEO always does what he says he will do eventually, if not always on schedule. So it's still unclear if or when these grandiose plans will become reality. However, this was the year that many of SpaceX's oldest promises finally panned out, and the company surpassed expectations of its biggest naysayers. That means expectations for the company are higher than ever going into next year, and SpaceX will have a high bar to clear if it wants to beat the success of 2017. The company may have started this year wounded, but it certainly finished with a roar.

Final grade: A

A 2017 Grade

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Gold Stars

- Launched more rockets than any previous year
- Stuck all of its rocket landings
- Showed that used rockets are just as capable flying again for high-profile missions

Needs Improvement

- Less unrealistic deadlines
- Maybe zero accidental fires next year

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