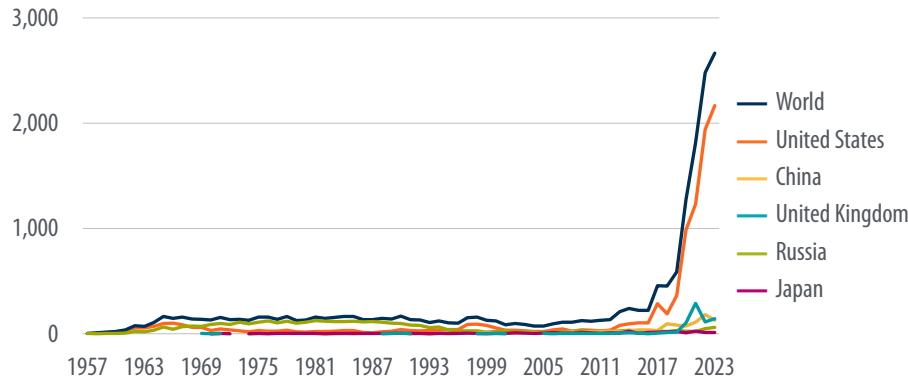


## SpaceX: Leading Space Innovation

On Sunday, SpaceX achieved a groundbreaking milestone as its Starship rocket was successfully caught mid-air by a giant pair of mechanical arms upon its return to land. This historic feat marks a major leap toward its goal of creating a fully reusable and rapidly deployable rocket system. In this week's "Three on Thursday," we explore the latest developments in space exploration. Advancements in space travel technology have dramatically reduced the cost of launching payloads into space. From the iconic Apollo missions of the 1960s to today's cutting-edge innovations, breakthroughs in materials science and propulsion—driven largely by private companies like SpaceX—have brought down what were once astronomical costs. This reduction is making space more accessible, fostering competition, and unlocking new possibilities for scientific research, satellite deployment, and even space tourism. For more insights, check out the three charts below.

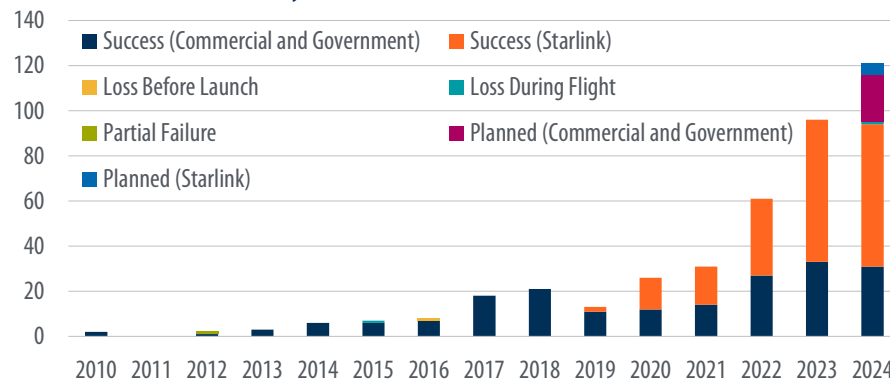
### Annual Number of Objects Launched Into Space



Source: United Nations Office for Outer Space Affairs, First Trust Advisors, Annual data through 2023. Chart includes satellites, probes, landers, crewed spacecrafts, and space station flight elements launched into Earth orbit or beyond.

The space launch industry witnessed an unprecedented boom in 2023, setting a new record for the number of objects sent into space. Incredibly, the total number of objects launched in the last five years—including projections for 2024—exceeds the combined total from the beginning of space exploration in 1957 through to 2019. The United States has been at the forefront of this surge, accounting for most of these launches, largely driven by SpaceX's remarkable achievements. SpaceX has played a pivotal role, deploying thousands of Starlink satellites into low-earth orbit. These satellites, a technological breakthrough, not only helped the U.S. claim 81.3% of all global launches in 2023 but also revolutionized global connectivity by providing affordable internet access to remote areas. In contrast, the United Kingdom, the second-highest contributor, accounted for a distant 5.4% of launches in the same year.

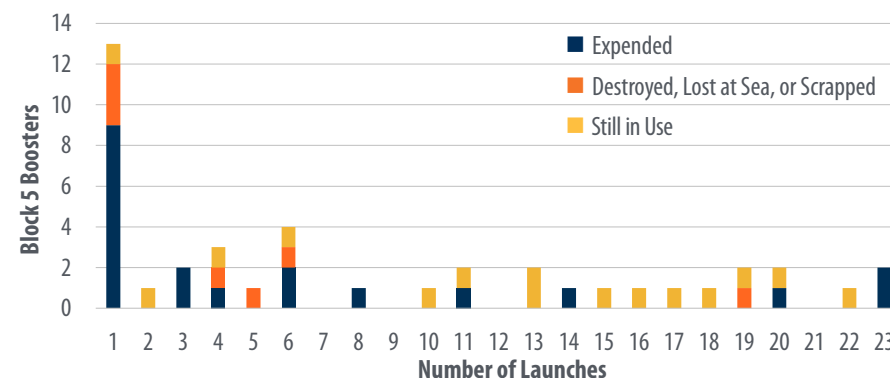
### Falcon 9 and Falcon Heavy Rocket Launch Outcomes



Source: SpaceX, First Trust Advisors.

Over the past 14 years, SpaceX's Falcon 9 rocket family has achieved an impressive track record, with 391 launches and 388 successful missions—an outstanding 99.23% success rate, marred by only three failures and one partial failure. In 2023, SpaceX set a new global benchmark by launching 96 Falcon rockets, surpassing their previous record of 61 launches in 2022. As 2024 unfolds, SpaceX is on pace to shatter their 2023 total with a new record of 98 launches already completed through October 15 and more planned before year's end.

### Number of Times the Same Block 5 Booster Has Been Used



Source: SpaceX, First Trust Advisors. Data through October 15, 2024.

The dramatic reduction in the cost of space launches can be traced back to a game-changing moment on December 21, 2015, when SpaceX made history by successfully landing a rocket's first stage after launch. This achievement marked the beginning of SpaceX's ambitious push to reuse rockets, initially aiming for up to 10 flights per rocket before retirement. However, on August 28, 2024, SpaceX surpassed even its own expectations, setting a record when one of their rockets completed its 23rd successful launch. The latest version of SpaceX's reusable booster, the Block 5, first flew in 2018 and has since become the cornerstone of its fleet. To date, SpaceX has launched 43 new Block 5 boosters. Of these, 27 are no longer active (with 20 expended and 7 lost, destroyed, or scrapped), while 16 remain operational, each with at least one successful flight.

This report was prepared by First Trust Advisors L.P. and reflects the current opinion of the authors. It is based upon sources and data believed to be accurate and reliable. Opinions and forward looking statements expressed are subject to change without notice. This information does not constitute a solicitation or an offer to buy or sell any security.