

SPACEX

THE INDEPENDENT INVESTMENT GUIDE:



PREFACE

Space — the final frontier.

Humans have long been captivated by space, from the days when early homosapiens revered the stars to the periods when visionaries like Copernicus and Galileo used math and science for deeper comprehension. In modern times, visionaries like Elon Musk are reshaping space accessibility with innovative ideas, aiming to broaden humanity's horizons in remarkable ways.

Across these milestones, a recurring question has been, "Why?"

Why sail across oceans if the Earth is flat?

Why lay tracks across continents when horses suffice?

Why explore space when our own planet has ample challenges?

The answer, we believe, lies in our history. Expansion and curiosity drove early hominids to venture beyond their origins, eventually populating all continents. Centuries later, European nations sought fresh territories and resources. The last century witnessed railroads crisscrossing America, bringing with them growth in knowledge, wealth, and improved living standards for many.

Space represents the next phase of human progress, and its potential benefits are limitless.

Our journey to the stars will deepen our understanding of Earth, and allow us to harness the knowledge of the cosmos. Beyond our planet, the universe offers vast reservoirs of resources, such as abundant "rare Earth metals". Tapping into this potential will require infrastructure reminiscent of the ships of old colonizers and the railroads that fueled the industrial revolution.

We are convinced that SpaceX is pivotal to realizing this vast potential and will serve as the necessary infrastructure to usher humanity into the final frontier.



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GUEST ANALYSIS

An independent opinion on the forward
looking opportunity that SpaceX represents.



GUEST ANALYST: Brian Wang

Why I believe SpaceX will go next level over the next 2-3 years.

The Spaced Venture report lays out the key areas of launch execution that SpaceX has been achieving. Here are the key drivers I see in SpaceX multiplying its revenue over the next 2-3 years.

They have completed a factory in Texas to make dishes and other customer-facing equipment. They will increase from 100k to 150k dishes per month to over 500k per month. Production of dishes means they can onboard more customers. They can also produce more priority customer dishes which are twice as big for faster, higher subscription and more reliable service. They have added priority service levels which is double the standard speed.

SpaceX provided 20k dishes to Ukraine, where they have proved are hack proof against the Russians. SpaceX software engineers updated the firmware faster than it could be hacked. The Pentagon and Space Force have a \$70 million initial contract for Starshield secure communications. I think this will eventually be over \$2000+ per month for over 500k in government. Like the new priority services, there will likely be multiple levels of Starshield secure service for Intelligence agencies, financial companies, governments and military.

I think Starlink will IPO in the second half of next year. This will be with stable profitability and predictable revenue growth. Ideally, this would be done after the first orbital flight of the Starship.

Once the reusable starship is flying they will get all Gen. 2 satellites up by the end of 2025. 40000 bigger satellites with 4-6 times gen 1.5 satellite bandwidth. There are almost 5000 Starlinks in orbit now about 4300 are active. This will be about 50 times the bandwidth of today. This will support over 200 million customers globally and provide voice and text and 1g internet direct to all regular cell phones via the direct-to-cell phone service using the 50 square meter antenna on the Gen 2 and beyond satellites.



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NOTE FROM THE ANALYST

“A first-principles analysis was used. Estimated factory capacities, production, and revenue for all products and product lines.”

TL:DR

“SpaceX profit monopoly: Bastrop dish factory 10X customers, 2-10X \$ per month (priority, RV, secure military comms)”

DISCLAIMER

These insights are derived from public, yet not commonly highlighted, open-source resources and is not to be construed as investment advice or a solicitation to invest. The guest analyst's opinions are their own and are not necessarily shared by Spaced Ventures or its affiliates.

The new priority tier services will increase revenue by about 20-40% in 2024. The Starshield secure communications will grow into a multi-billion dollar per year business.

SpaceX will leverage the mass production of rocket engines, rockets, launch towers, dishes and other consumer products, and satellites to grow global communications. They will eventually capture about 20% of all internet and cellphone communications and services. SpaceX is transitioning now to new levels of the mass production of dishes and satellites.

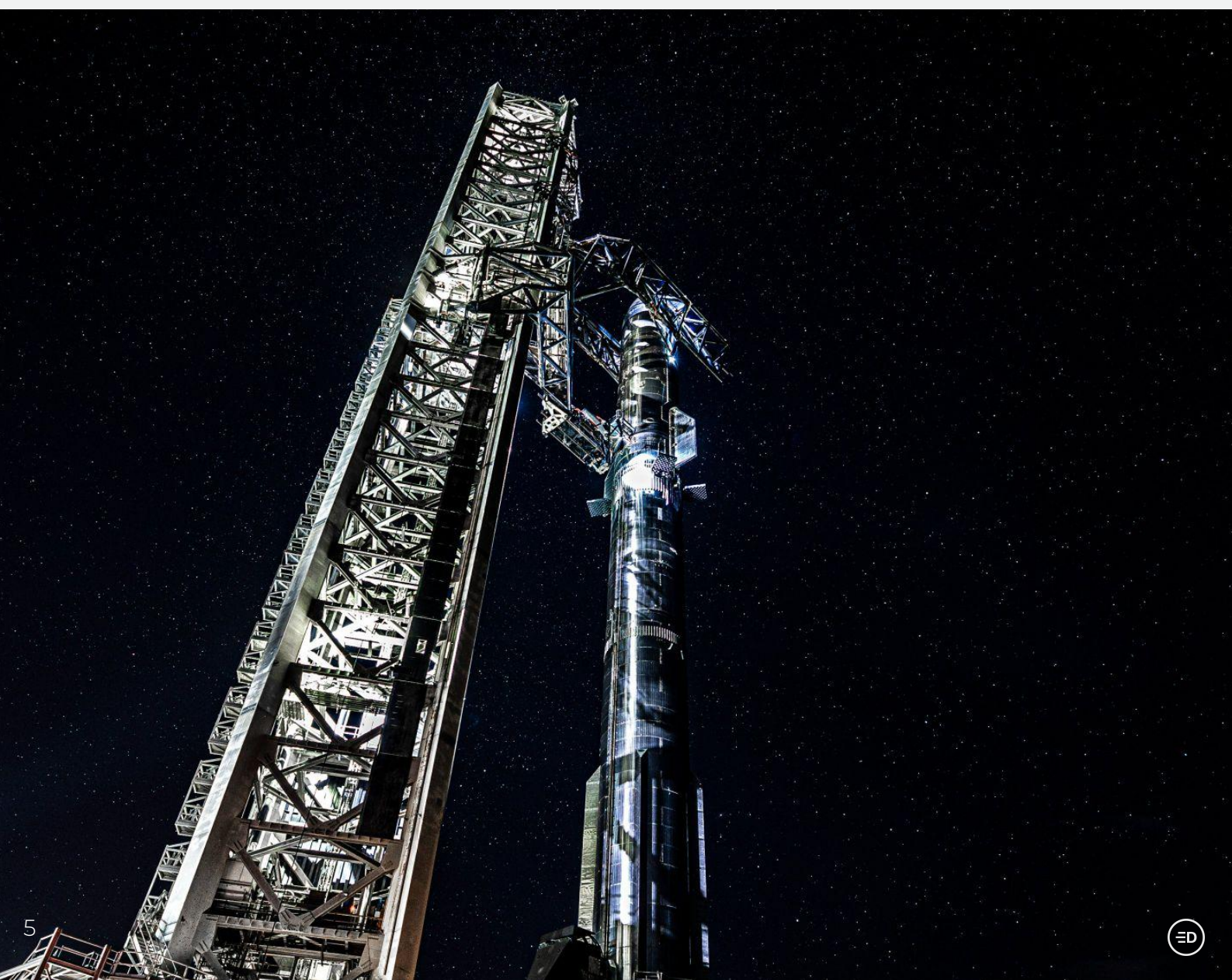
The Starship era would mean Gen 2 and Gen 3 satellites in the 40000 and 120000 constellations. The Satellite direct to cell phone communication at 18 mbps per satellite would reach global 1G to 2G communication capacity.

Why I believe SpaceX will go next level over 2-3 years. (cont)

This would be beyond text and voice for all everywhere to significant internet everywhere. This would be for individuals and devices (IOT) and enable smart car and robot satellite services. Starlink having 1G to 2G global capability means the Starlink-only cellphones would become practical and common. This would be for the entire global cellphone market and open up new markets like the billion unserved customers in Africa and Asia.

This would be before the reusable Starship era. Reusable Starship means launch payload activity increases rapidly to 100 times current levels. 10 times payload with the same launch rate but more payload per launch.

Another 10 times with a more rapid launch cadence. This 100 times would be capacity beyond the even Gen 3 and Gen 4 Starlink satellites. Reducing the cost of payload means the capacity could only be used for the movement of international air cargo. Mass-produced \$20 million Starships and \$100-200 million launch sites would have 5 times lower costs than orbital launches as only a single stage would be launched. This is 20 times faster, 15 times lower cost and 4 times the payload of large commercial aviation. The asset utilization rate would be over five times that of commercial aviation. The half-hour flights from New York to Tokyo would mean ten flights per day instead of at most two for regular aviation.



UPDATES & THE NEXT 12 MONTHS


Important recent events since the writing of this analysis and what to expect over the next 12 months.



UPDATES

Significant Events as of 10/30/2023


SpaceX's launch capabilities and Starlink continue gaining momentum. Since July alone, there have been 33 successful launches (31 Falcon 9's and 2 Falcon Heavy's), which have delivered 634 Starlink satellites, 5 customer payloads as well as a crewed mission to the International Space Station ¹. This brings SpaceX's average launch rate to every 4.1 days for 2023 ².

- 
- 04/20/23: the first integrated flight test of Starship successfully occurred, resulting in damage to the launchpad and surrounding infrastructure
 - 06/23/23: Valuation of SpaceX reportedly raises from \$137B to \$150B ³
 - 08/17/2023: data released showing SpaceX was responsible for ~80% of all mass launched into space in Q2 ⁴
 - 09/27/23: SpaceX is awarded the first government contract for Starshield - a \$70M contract to build a satellite network for US military use ⁵
 - 09/01/2023: NASA announces plan with SpaceX to investigate developing Starship into a low-earth-orbit space station by 2028 ⁶
 - 09/06/2023: SpaceX reportedly had \$4.7 billion in cash on hand at the end of 2022 ⁷
 - SpaceX now operates > 5000 satellites and has >2M Starlink 'Active Customers' ⁸

THE NEXT 12 MONTHS

Q4 '23 - Q4 '24

Some developments worth keeping an eye on.

- 
- The second integrated flight test of Starship is rumored to occur late 2023 - early 2024⁸.
 - Rate of launch will continue to accelerate. SpaceX is planning to launch 12 times a month in 2024, which is every 2.5 days (vs. every 4.1 days in 2023)⁹. These missions will predominantly be Falcon 9 but there are also 4 Falcon Heavy missions planned¹⁰.
 - Expect Starship flights to pick up the pace as well. Elon Musk has mentioned that Starlink phone service would require larger satellites, only launchable by Starship⁹. He also stated in October 2023 that he expects Starship to be launching satellites in late 2024¹¹. Starship test flights will undoubtedly accelerate to meet these goals - the next big leap in Starlink infrastructure depends on it.
 - Starlink coverage will continue expanding. The current coverage map show huge geographies that SpaceX intends to start offering services in next year¹². In 2024, roughly half of all African nations will have Starlink become available as well as India, upon their imminent regulatory approval¹³.
 - Starshield has proven its value during the Ukraine conflict. Now that the US military has begun contracting Starshield, do not be surprised if other governments follow suit. We expect more contracts with the US military as well as other nations coming in 2024.

THE SPACE BUSINESS

A thorough guide to SpaceX's technology, products, services and finances, based on deep research and publicly available information.



SUMMARY

Founded in 2002 by Elon Musk, SpaceX has demonstrated its prowess in developing industry leading launch vehicles, the most efficient rocket engines, modern human spacecraft, and other space exploration technologies. SpaceX has an impressive track record of successfully launching and landing rockets, making them the only rocket manufacturer in the world to have successfully landed and re-used an orbital rocket, which they accomplished back in 2017. Their reusable rocket technology has significantly reduced the cost of space launches and given them a clear competitive advantage.



Aside from their launch services, SpaceX is actively working on developing space transportation systems for humans and cargo to various destinations, including the moon and Mars. Their Dragon spacecraft has completed 38 cargo and 12 crewed missions to the International Space Station ¹⁴. They are the only private company to achieve this feat with a crew.

SpaceX's Starship spacecraft is expected to play a critical role in future endeavors, including the commercialization of low-earth-orbit ('LEO') as well the goal of establishing a permanent human settlement on the Moon and eventually Mars.

SpaceX is a private company and its financial information is not publicly available. However, the company's latest valuation was \$150 billion, making it one of the most valuable private companies globally ¹⁵. Moreover, SpaceX has a robust pipeline of projects and partnerships, including contracts with NASA and other commercial customers, which ensures a positive outlook for its future growth and profitability (See [Appendix B](#)).

¹⁴. [SpaceX Dragon](#) ¹⁵. [SpaceX \\$150B Tender Offer](#)

BEACHHEAD MARKET SIZE & GROWTH

Launch Services

SpaceX is the dominant figure in the global launch services market, having garnered a substantial market share and an impressive track record of successful launches. The company's Falcon 9 and Falcon Heavy rockets are extensively utilized for both commercial and government missions, positioning SpaceX as a reliable and cost-efficient launch service provider.

In recent years, SpaceX has made remarkable advancements in the development of reusable rocket technology, consistently recovering and reusing the first stages of its Falcon 9 and Falcon Heavy rockets. This has resulted in significant cost savings for the company and drastically reduced the cost of accessing space, increased demand for its launch services. As of September 2023, SpaceX launched roughly every 4 days and has had a 100% landing success rate this year¹⁶.

Looking forward, the Starship vehicle is expected to revolutionize SpaceX's capabilities and growth potential. The Starship is a fully reusable spacecraft designed to carry both crew and cargo to the Moon, Mars, and beyond. With a 6.8x larger payload mass capacity than the Falcon 9 and greater range than any other system, the Starship is poised to transform space travel as we know it. Additionally, Starship's payload fairing has a volume of 1,100 cubic meters¹⁷. This is about the same volume as a 5,000 square foot house with 8 foot ceilings. By comparison the Falcon 9's volume is about the size of a 500 square foot apartment.



Starship's volume capability will reduce the cost of engineering for large telescopes and satellites because they will no longer need to fold up and go through complex unfolding procedures after launch.

Although the global launch services market is fiercely competitive, SpaceX's continued commitment to cost-effectiveness and technological innovation positions the company well for future growth and success. With the demand for space-based technologies and services on the rise, SpaceX is well-equipped to capture a significant share of these markets and maintain its status as a major player in the space industry.

¹⁶ [Space Briefing](#) ¹⁷ [Starship](#)

Satellite and Broadband Internet

SpaceX's Starlink satellite internet service has disrupted the traditional broadband internet market and revolutionize the satellite internet industry. Its potential to provide both cost and performance advantages has already been proven, having over 2 million subscribers currently¹⁸.

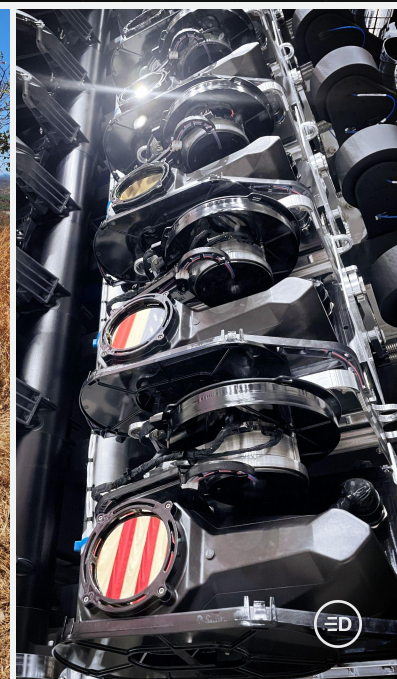
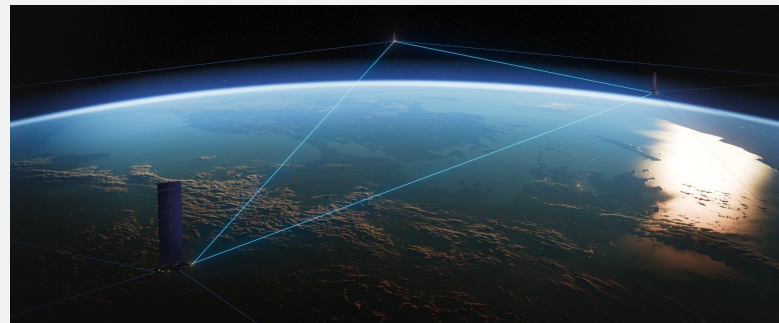
One of the most significant advantages of Starlink is its ability to provide internet access to users in remote or rural areas where terrestrial infrastructure is limited or non-existent. Its innovative network of thousands of small satellites in low Earth orbit can provide reliable and high-speed internet access to ground-based users, overcoming the limitations of traditional broadband providers.

Starlink's advanced technology, such as phased array antennas and 100gbps crosslink lasers, allows for faster and more reliable internet access, even in areas with challenging terrain or weather conditions. This technological prowess puts Starlink in a strong position to not only capture a significant share of the traditional internet market, but expand this market by finding customers in geographies inaccessible by traditional internet infrastructure.

Another promising use-case is for military communications and surveillance. Starshield, the military equivalent of Starlink, received its first contract from the Department of Defense in September¹⁹.

Although other companies, such as Amazon's Project Kuiper, Viasat and Eutelsat Group (recently merged with OneWeb) offer similar services, SpaceX's extensive experience and expertise in rocket and spacecraft development give it a competitive edge. SpaceX's vertical integration and market diversification strategy, including early traction with Starshield further positions the company for future success.

Despite the regulatory and technical challenges that must be addressed for Starlink to reach its full potential, SpaceX's market position and focus on innovation make it a leading player in the satellite internet industry. As such, it is no surprise that they are confident in their ability to launch competitors' satellites, such as OneWeb, and maintain their dominance in the market.



¹⁸ [Starlink Wiki](#) ¹⁹ [Starshield Pentagon Contract](#)

PRODUCTS & TECHNOLOGY



Dragon 2

SpaceX's Dragon spacecraft is a cutting-edge reusable vehicle specifically designed to transport both cargo and humans to low Earth orbit and beyond. Composed of two distinct parts, the Dragon spacecraft features a pressurized capsule for crew or cargo, as well as an unpressurized trunk area that can be used for transporting cargo. Transported into orbit by the Falcon 9 rocket, Dragon 2 has already achieved remarkable success, having completed a total of 38 successful missions to the International Space Station (ISS) for both cargo delivery and crewed missions²⁰.

Boasting an impressive life support system, the capsule portion of the Dragon spacecraft can accommodate up to seven passengers, making it an ideal choice for both crew and cargo transport. Moreover, the trunk area of the spacecraft can easily transport a diverse range of payloads, with the capability to transport scientific equipment, supplies, and even an inflatable space habitat.

The Dragon capsule's impressive payload capacity makes it an indispensable resource for space missions, with a weight rating of 6,000 kg (13,000 lb) to LEO, 3,307 kg (7,291 lb) to the ISS (with up to 2,507 kg (5,527 lb) pressurized and up to 800 kg (1,800 lb) unpressurized)). In addition, it can also retrieve scientific cargo from the ISS, with a weight rating of up to 2,507 kg (5,527 lb)²¹.

Dragon's remarkable versatility and impressive capabilities have already been demonstrated in a variety of successful missions, including those for Inspiration4, a historic commercial mission that transported four private astronauts well beyond the orbit of the ISS. Since that flight in 2021, the Dragon capsule has been used consistently by NASA to bring both crew and cargo to the ISS. As such, the Dragon spacecraft is an essential component of SpaceX's mission to enable human exploration and colonization of space, paving the way for the next generation of space exploration.

²⁰ [SpaceX Dragon](#) ²¹ [SpaceX Dragon 2](#)



Falcon 9

SpaceX's Falcon 9 rocket represents a cutting-edge, partially reusable launch vehicle engineered to efficiently deploy payloads to orbit. The rocket comprises two stages, including the first stage, which provides the initial thrust and ascent, and the second stage, which takes over after the separation of the first stage and delivers the payload to its intended orbit. Boasting a significant payload capacity, the Falcon 9 is rated to deliver 22,800 kg (50,265 lbs) to Low Earth Orbit (LEO) and 8,300 kg (18,300 lbs) to Geosynchronous Transfer Orbit (GTO).

Central to the Falcon 9's capabilities is its revolutionary reusable design, with the first stage capable of landing vertically on a drone ship landing pad or back on land

post-separation. This breakthrough innovation enables the booster stage of the Falcon 9 to be utilized for future launches, resulting in substantial cost reductions. In fact, the majority of SpaceX's missions leverage re-used boosters, solidifying the company's leadership in this area. Since SpaceX started using their Falcon 9 block 5 in May of 2018, they have made 39 boosters. These 39 gen 5 boosters have been used to complete over 215 launches ²², averaging about 6 launches per booster since the design was finalized. These missions have included commercial and government satellites, crew and supply deliveries to the International Space Station, and private human spaceflight initiatives.

²² [Falcon 9 1st Stage Boosters](#)

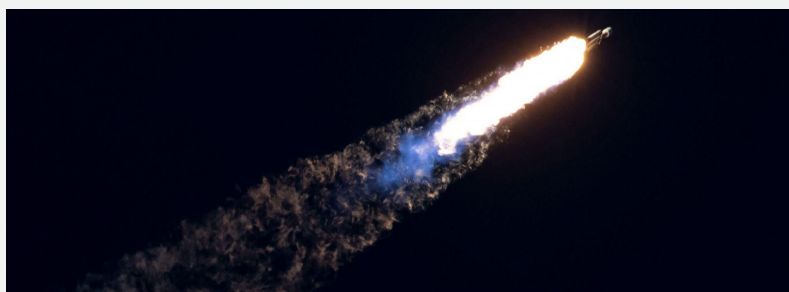
Falcon Heavy

The Falcon Heavy rocket is a reusable heavy-lift rocket designed for delivering large payloads into orbit, such as satellites, spacecraft, and interplanetary missions. Falcon Heavy is rated for 63,800 kg (140,660 lbs) to Low-Earth Orbit (LEO) and 26,700 kg (58,860 lbs) to Geostationary Transfer Orbit (GTO) ²³.

Falcon Heavy consists of three Falcon 9 first stage boosters that are attached together to create a powerful launch vehicle. The rocket also has a second stage that delivers the payload to its intended orbit after the first stage boosters separate, similar to Falcon 9. Also like Falcon 9, Falcon Heavy makes use of a reusable design, with the first stage boosters capable of landing vertically after separation and being used for future launches.

The Falcon Heavy was the rocket used to launch Elon Musk's personal Tesla roadster on an interplanetary trajectory. Since then, it has been used for several successful missions, including delivering commercial and government payloads into orbit.

In July 2023, the Falcon Heavy was used to fly the Hughes Jupiter 3 mission, the heaviest ever commercial communications satellite, to GTO ²⁴. In October 2023, Falcon Heavy launched NASA's Psyche mission, which will travel to a metal-rich asteroid in deep space with the goal of studying it ²⁵. These examples show the Falcon Heavy has become one of the world's most powerful operational rockets and is a crucial component of SpaceX's plans for deep space exploration and travel.



23. Falcon Heavy Wiki 24. Jupiter 3 25. Falcon Heavy



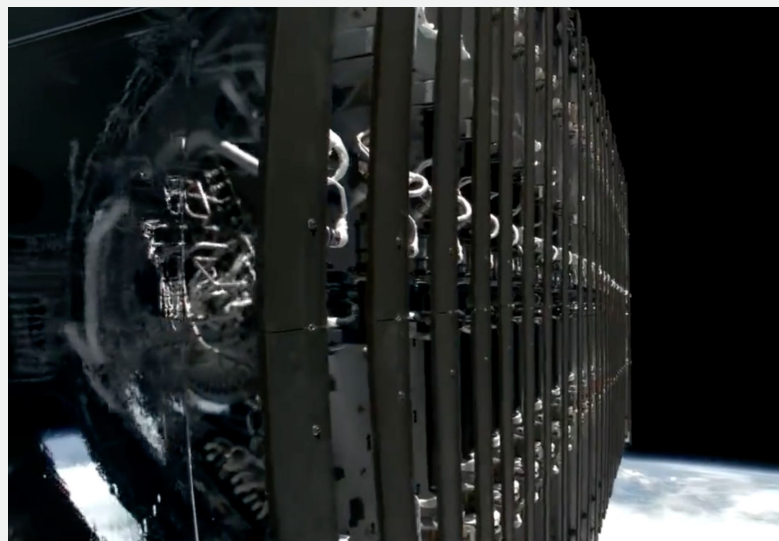
Starlink

SpaceX's Starlink is a next-generation satellite-based internet service designed to overcome the limitations of traditional terrestrial internet infrastructure. It leverages a constellation of thousands of small satellites in low Earth orbit, which work in concert to provide high-speed internet connectivity to even the most remote locations on the planet.

The Starlink network operates in the Ku-band and Ka-band frequencies, and employs cutting-edge phased-array antennas to enable precise beamforming and satellite tracking. Users can easily access the network through a compact, user-installed terminal that includes a parabolic antenna, a modem, and a Wi-Fi router. The terminal communicates with the Starlink satellites and ground stations to deliver low-latency, high-speed internet access.

Starlink left its beta phase towards the end of 2021 and, since then, has already attracted over 2 million users worldwide ²⁶, including those residing in homes, RVs, yachts, and airplanes.

As the number of Starlink satellites in orbit increases, direct-to-phone service will become possible. Starlink is set to launch text services for phones in 2024, with voice and internet coming in 2025 ²⁷. Global internet access via smartphone will bridge the digital divide that exists with respect to underserved and unserved populations. SpaceX hopes this will have a positive impact on global socioeconomic inequality ²⁸.



26. [Starlink Wiki](#) 27. [Starlink for Phones](#) 28. [Elon on X](#)

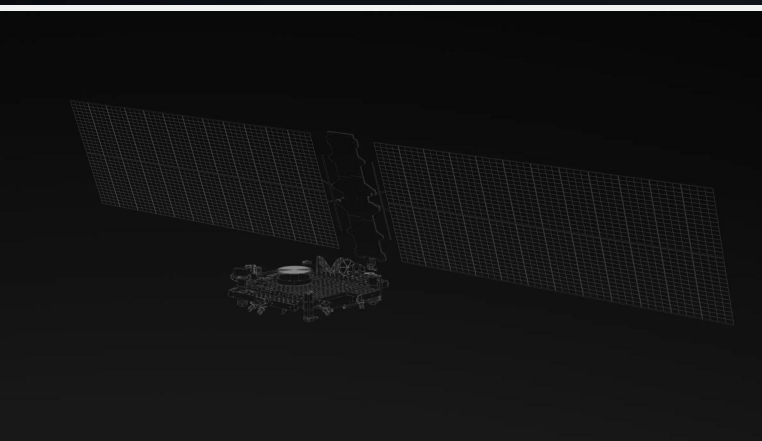
Starshield

On December 5, 2022, SpaceX unveiled Starshield - a military version of the Starlink satellite network. On September 27, 2023, it was announced that SpaceX won a 1 year, \$70M contract with the U.S. Space Force to build out a Starshield network ²⁹. SpaceX will provide the U.S. military with end-to-end service with an initial focus on imagery, communications, and hosted payloads - this allows the military to install their own hardware on specific satellites for unique use cases.

SpaceX notes that Starshield uses “additional high-assurance cryptographic capability to host classified payloads and process data securely,” building upon the data encryption it uses with its Starlink system ³⁰.

Another key feature: the “inter-satellite laser communications” links, which the company currently has connecting its Starlink spacecraft. It notes that the terminals can be added to “partner satellites,” so as to connect other companies’ government systems “into the Starshield network.”

In March 2022, Starlink's robust response to a Russian jamming attempt on its dishes in Ukraine garnered commendation from the US Office of the Secretary of Defense ³¹. During a Russian jamming attempt, SpaceX swiftly upgraded Starlink to counter the threat, impressing officials with its agility. Dave Tremper, the Director of Electronic Warfare at the Office of the Secretary of Defense, acknowledged this swift adaptive response at the 2022 C4ISRNET military conference in April 2022 ³². He highlighted the agility displayed by Starlink as a valuable quality, suggesting a benchmark for threat responsiveness. This incident underlines Starlink's robust and agile operational capabilities, which are encapsulated in its 'Starshield' feature, affirming its investment potential in ensuring resilient communication networks.



Starship

SpaceX's Starship is a reusable spacecraft designed for interplanetary travel and to support missions to the Moon, Mars, and beyond. It will be able to deliver more payload to LEO than any other rocket before it by a factor of two and have variants that support each other to complete different mission sets.

Starship consists of two main elements. The spacecraft, which houses the crew and cargo, is powered by six Raptor engines, which use methane and liquid oxygen as propellants, making it highly efficient and environmentally friendly. And the Super Heavy booster, which will be the most powerful rocket ever built, with up to 33 Raptor engines providing over 17 million pounds of thrust ³³. BOTH of these stages are designed to be fully and rapidly reusable coming closer to the logistics of a commercial aircraft.

Starship is designed to be manufactured at a scale that has not been seen in the space economy. This is a key difference when comparing Starship to other launch vehicles. Gwen Shotwell has said "There's a lot of little things to get done, especially because we weren't really focusing on the orbital ship -- we were focusing on the production systems that will build the ship. We know how to get to orbit," ³⁴. SpaceX aims to manufacture one starship per month. By comparison the NASA/ULA SLS struggles to manufacture 1 per year at a cost of 4 billion dollars per vehicle ³⁵. Musk has said that SpaceX aims to get the cost of manufacturing a Starship down to 1 million dollars per ship ³⁶.

33. [Starship Wiki](#) 34. [Starship Engines](#) 35. [NASA Space Launch System](#)
36. [Starship – Biggest Rocket Ever](#)



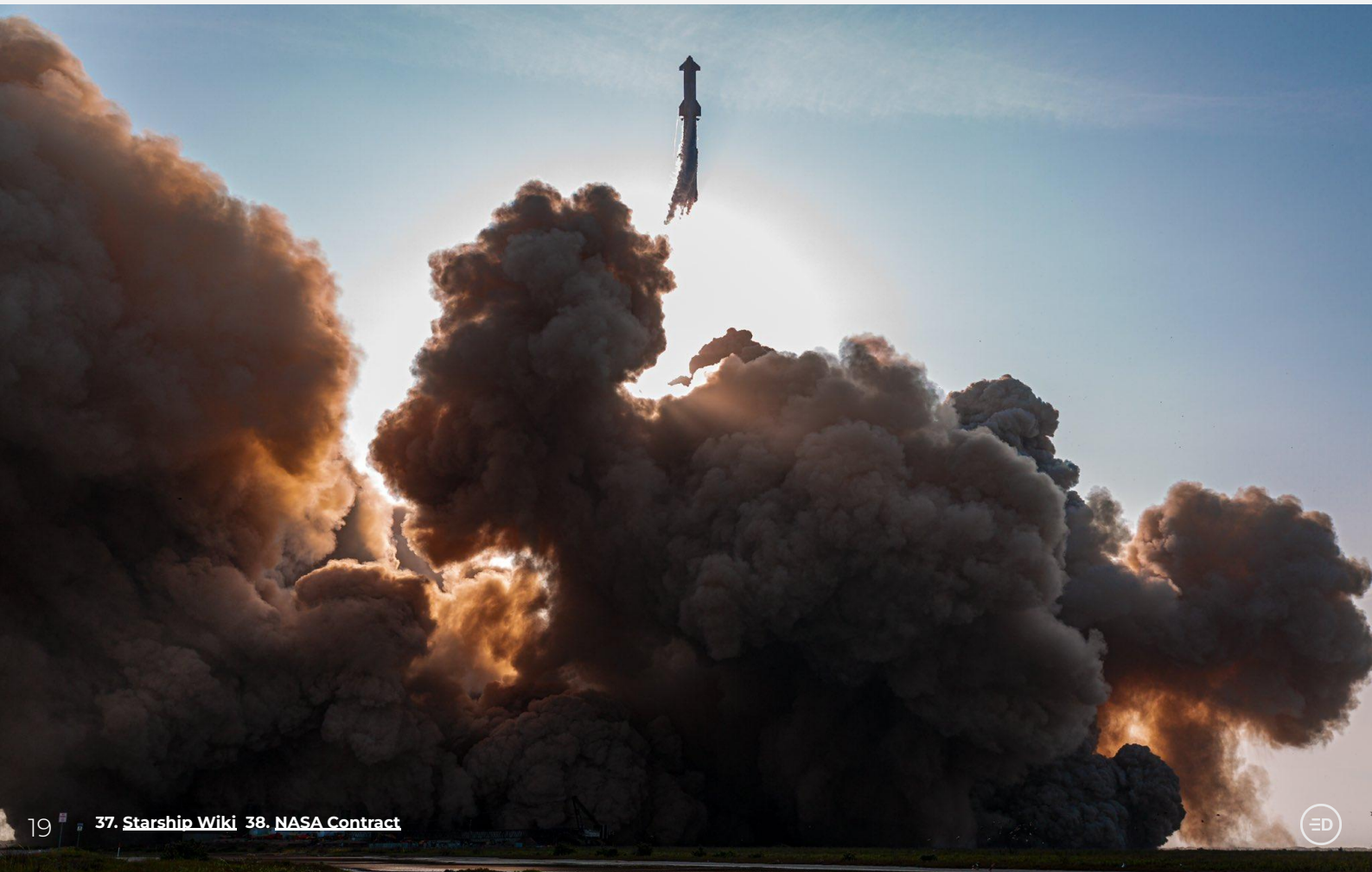
Starship is designed to carry up to 100 passengers and cargo, with a total payload capacity of over 150 metric tons (330,00 lbs) to LEO without being refilled/refueled ³⁷. As mentioned before, starships will have variants for different mission objectives. Known variants include: Crew, Cargo Lunar Lander, Tanker and Deep Space. The tanker for example will act as a fuel depot in-orbit for the lunar lander variant to refill/refuel on before traveling on to the moon. This may seem far-fetched but NASA has already selected Starship to act as the Lunar lander for the Artemis moon missions set to land on the moon in this decade ³⁷.

In addition to its intended use for interplanetary travel, SpaceX has identified several aspirational markets for the Starship, including point-to-point travel on Earth, space stations, and satellite launches.

Point-to-point travel on Earth using Starship would involve launching from one location on Earth, traveling through space, and landing at another location on Earth, allowing for rapid travel times between distant cities. SpaceX has suggested that this could enable travel times between New York and Shanghai to be under 45 mins.

Starship's large payload capacity also makes it well-suited for satellite launches, with the ability to deploy multiple satellites in a single mission, reducing cost of access to space even further.

NASA has also announced it is investigating turning Starship into a low-earth-orbit space station by 2028, showing the versatility of the vehicle. It also points to the significant role Starship could play in the infrastructure supporting a commercialized LEO ³⁸.





CUSTOMER TRACTION

2002	SpaceX Founded
2006	NASA awarded SpaceX a \$278 million contract to develop the Falcon 1 and Falcon 9 rockets.
2010	SpaceX became the first privately funded company to send a spacecraft to the International Space Station (ISS).
2012	SpaceX signed a \$1.6 billion contract with NASA to transport cargo to the ISS.
2015	SpaceX successfully landed the first stage of a Falcon 9 rocket for the first time, marking a significant milestone in rocket reusability.
2016	SpaceX signed a \$2.6 billion contract with NASA to develop the Crew Dragon spacecraft for transporting astronauts to and from the ISS. This marked the first time a private company had been awarded a contract to provide crew services.
2020	SpaceX had successfully launched the first crewed mission to the ISS, with astronauts Bob Behnken and Doug Hurley aboard the Crew Dragon spacecraft.
2021	SpaceX has launched over 100 missions, including cargo and crew missions for NASA, commercial satellite launches, and launches for international customers.
2022	SpaceX launched more payload mass to orbit than all other countries and companies combined.
2023	SpaceX launched the Starship rocket for the first time, making it the most powerful rocket ever to leave the pad. A second test is due before 2024. Starshield wins its first contract. Starlink passes 2M customers.

FINANCIALS

SpaceX currently operates in two primary markets: satellite internet and launch services. The company keeps financial information private, therefore any analysis will have to be based on assumptions.

We've produced a high-level analysis of SpaceX's business given publicly available data. In the following pages, you will find the data we used to derive the unit economics of SpaceX's two main business lines: Starlink and Launch.



CORE UNIT ASSUMPTIONS

Starlink (Satellite Internet)

Core Revenue Inputs

2 million subscribers as of September 2023 ³⁹

Below is a breakdown of Starlink prices by user types as of October 2023 ⁴⁰:

Type	Monthly	Install/Hardware Cost	Estimated % of Total Users *
Home	\$120	\$599	70%
Business	\$500	\$2.5k	15%
Mobile/RV	\$150	\$599	10%
Maritime	\$250	\$2.5k	4%

Core Unit Cost Inputs

Satellites

- 589 Starlink satellites were launched in Q3 ⁴¹ so roughly 2400 will be launched in 2023
- Starlink satellites estimated to cost \$250k each to manufacture ⁴²

User Terminals

- VP of Starlink and commercial sales, Jonathan Hofeller, stated in September 2023 that SpaceX is no longer subsidizing the cost of the user terminals ⁴³
 - Therefore, we can assume \$599 is the current maximum cost to manufacture a terminal

* these figures not public and are our best estimate

39. [SpaceX Starshield Contract](#) 40. [Starlink Official Website](#) 41. [SpaceX Launch Schedule](#)

42. [Starlink Satellite Cost](#) 43. [CNBC Article](#)

CORE UNIT ASSUMPTIONS (cont)

In 2018 Elon stated that the cost breakdown of the Falcon 9 was: 60% booster, 20% second stage, 10% fairings, 10% launch costs ⁴⁴. In 2020 Elon stated that the **financials of the Falcon 9 were roughly breakeven at 2 launches** and ahead with 3 launches ⁴⁵. We assume that this has improved so they are achieving a 20% margin at 2 flights.

Falcon 9 (Launch Services)

Core Revenue Inputs

Falcon 9 Price Progression: ⁴⁶

\$49.9 - \$56 million in late 2010

\$54 - \$59.5 million in 2012

\$61.2 million in 2013

\$62 million in 2016

\$67 million per launch since 2022

Whilst there are certain Falcon 9 government contracts that are priced higher, the extra cost is typically due to needing to build new infrastructure, use of the Dragon capsule or need for extra security ⁴⁷.

Core Unit Cost Inputs

Reusability Progression: ⁴⁷

26 Launches in 2020

average 3.5 launches per booster

30 Launches in 2021

average 5.8 launches per booster

58 Launches in 2022

average 7.3 launches per booster

208 Launches with 25 boosters as of 18 October 2023

average 8.3 launches per booster

Based on this information, **at 8 flights per booster, we expect the booster is achieving a 45% margin in 2023**

Falcon Heavy (Launch Services)

Core Revenue Inputs

Falcon Heavy price progression: ⁴⁸

\$85 million in 2013

\$90 million

\$97 million per launch when re-usable (2022)

\$150 million per launch when expendable (2022)

Falcon Heavy is due to fly 4 times in total for 2023 ⁴⁷: 2 re-usable and 2 expendable flights, giving a revenue approximation of \$500 million

Core Unit Cost Inputs

We will use the fact that Falcon Heavy is made up of 3 Falcon 9 boosters and only one upper stage to approximate cost. We estimate that, given 50% of the constituent Falcon 9 boosters were re-used this year, **Falcon Heavy is achieving a 20% margin in 2023.**



44. [Falcon 9 Insurance Cost](#) 45. [Elon Musk Tweet](#) 46. [Falcon 9 Pricing](#)

47. [Falcon Launches 2023](#) 48. [Falcon Heavy Pricing](#)

CORE UNIT ASSUMPTIONS (cont)

Dragon (Human Spaceflight and Cargo Delivery)

Core Revenue Inputs

Dragon Cargo to ISS:

As of today Dragon has flown 28 missions under the Commercial Resupply Service contract to deliver cargo to the ISS ⁴⁹. Each one is estimated to cost \$140 million dollars per launch ⁵⁰

Given the cost of the Falcon 9 booster is included in these launch prices, we estimate that the price per launch to use Dragon for cargo is roughly \$70 million.

Dragon Crew to ISS:

NASA pays SpaceX an estimated \$55M per seat to the ISS ⁵¹. Therefore, filling all 4 seats would cost ~\$220M.

Subtracting the Falcon 9 cost, price per launch of Dragon for crew to the ISS is roughly \$150M.

2023 Flights completed/planned:

4 x Cargo Missions to the ISS

3x Crew Missions to the ISS (12 Astronauts)

Core Unit Cost Inputs

Of all Block 5 Falcon 9 launches with Dragon, the boosters have been re-used an average of 8.8 times ⁵¹, in line with all other F9 launches. Elon claims the capsule is designed to be reused 10 times with minimal need for rework ⁵².

Thus, the margin profile of the Dragon capsule must be similar to the Falcon 9.

For our analysis, **we will assume the cargo Dragon capsule also operates at a ~45% margin**, same as the Falcon 9, for the sake of estimation.



49. [Dragon 2 Flight List](#) 50. [NASA Citation](#) 51. [Falcon 9 First Stage Booster Reuse Records](#) 52. [Dragon V2 Reuse Targets](#)

2023 Estimated Revenue

The data points just discussed act as the inputs for our 2023 revenue estimation for SpaceX's **Launch** and **Starlink** business lines:

SpaceX 2023 Estimates					
Launch	#	Per Unit Cost	Revenue	Cost of Goods Sold	Total
Falcon 9 (Starlink)	78	\$37.2M	\$ -	\$ 2,903M	\$ (2,903M)
Falcon 9 (Customers)	23	\$37.2M	\$ 1,541M	\$ 856M	\$ 684M
Falcon 9 + Dragon 2 (Crew)	3	\$75.7M	\$ 651M	\$ 227M	\$ 423M
Falcon 9 + Dragon 2 (Cargo)	3	\$75.7M	\$ 411M	\$ 227M	\$ 183M
Falcon Heavy	5	\$77.6M	\$ 485M	\$ 388M	\$ 97M
Launch Gross Profit					\$ (1,513M)
Satellite Internet (Starlink)					
Hardware (Net New)	#	Per Unit Cost	Revenue	Cost of Goods Sold	Total
Home and RV	800,000	\$600	\$ 480M	\$ 480M	\$ -
Business	200,000	\$2,500	\$ 500M	\$ 120M	\$ 380M
Subscriptions		Per Month Cost			
Home and RV	1,600,000	\$120	\$ 2,304M		\$ 2,304M
Business	400,000	\$500	\$ 2,400M		\$ 2,400M
		Per Unit Cost			
Starlink Satellites (Net New)	2,400	\$250,000		\$ 600M	
Satellite Internet (Starlink) Gross Profit					\$ 4,484M
Total Revenue					\$ 7,710M
Total Gross Profit					\$ 2,970M
Gross Margin					39%

Estimation Commentary

- Whilst we can only derive **gross** profitability from publicly available information, this assessment of the unit economics of SpaceX's two main products/services gives us good insight into the business model today.
- The synergy between Launch and Starlink is responsible for providing the capital needed for mega-projects like Starship.
- An August 2023 leak of SpaceX financials revealed a \$559 million loss last year due to growth investments⁵³. Despite this, SpaceX's valuation surged to about \$150 billion, buoyed by revenue growth from under \$1 billion in 2015 to \$4.6 billion last year. The documents also showed a **net** profit of \$55 million in Q1 2023, on \$1.5 billion revenue, although it's not expected to maintain cash-flow positivity over the year.
- Starlink continuing to rollout to new geographies and Starshield being adopted by governments not only increases the customer base but, having customers spread across the globe allows for more efficient use of Starlink bandwidth; more of the satellites will be used at capacity more of the time, which will only further increase Starlink's profit margin.
- The synergies between launch and Starlink won't stop here: Starship's scale will allow for larger and more advanced Starlink satellites to be deployed, which will add superior coverage and bandwidth compared to current models.

⁵³ [SpaceX Revenue Analysis](#)

COMPETITION

CHINA (Launch Services)

While there are many private launch services companies in the United States and Europe the only major competitor to SpaceX is China. During Q2 2023, SpaceX launched 79% of all mass sent into space whilst China launched only 11% ⁵⁴. By comparison, non-SpaceX US companies launched <2% of total upmass.

The Chinese government has invested heavily in its space program, and China has become one of the leading players in the global launch services market. China has a number of state-owned enterprises that compete with SpaceX, including China Aerospace Science and Technology Corporation (CASC) and China Great Wall Industry Corporation.

One advantage that China has over SpaceX is its lower labor and production costs, which allow Chinese companies to offer launch services at a lower price point. In addition, China has a large pool of engineering talent and a well-established supply chain, which enable its space companies to rapidly develop and manufacture launch vehicles and related technologies.

China has also made strides in developing reusable rockets and spacecraft, which is an area where SpaceX has stood alone since 2017. For example, China is developing the partially reusable Long March 8 rocket, which is expected to compete directly with SpaceX's Falcon 9 rocket.



However, SpaceX still maintains a significant lead in this area with most of their Falcon 9 missions being serviced with reused rockets. In addition the Long March 8 has a payload capacity of 5,000 kg to Sun Synchronous Orbit (SSO) while the Falcon 9 can carry 8,000 kg when reused and 11,000 kg when expended.

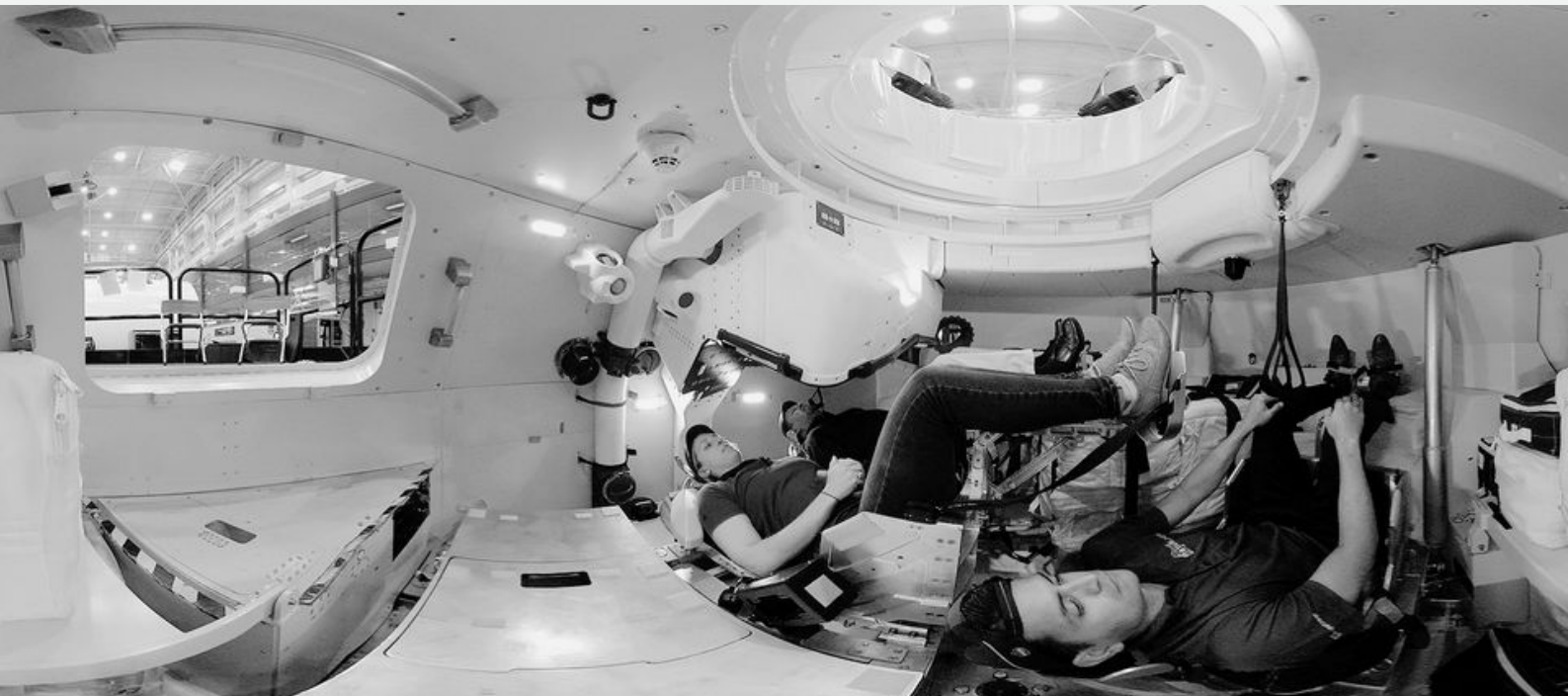


Despite these challenges, SpaceX remains the clear leader in the launch services industry, with a proven track record of successful launches and a strong reputation for innovation and technology.

⁵⁴. [BryceTech Q2 2023 Briefing](#)

COMPETITION

Boeing (Human and Cargo Spacecraft)



Boeing's Starliner spacecraft competes with SpaceX's Dragon spacecraft particularly in the area of crewed and cargo missions to the International Space Station (ISS). Both companies have contracts with NASA to provide crewed transportation services to the ISS, and they are in direct competition to win additional contracts and customers in the commercial space industry.

One advantage that Starliner has over Dragon is its heritage in the aerospace industry. Boeing has a long history of designing and building spacecraft for NASA, and its expertise in aerospace engineering is seen as a valuable asset in the highly competitive launch services market.

Starliner also has the advantage of being designed to launch on multiple rockets,

including the Atlas V and Vulcan rockets, whereas Dragon is designed to launch exclusively on SpaceX's Falcon 9 rocket. This theoretically gives Starliner more flexibility in terms of launch options, and reduces its reliance on a single launch provider, but with SpaceX launching more Falcon 9's than the rest of the US industry combined twice over this becomes less of an advantage.

SpaceX's Dragon spacecraft has many advantages over Starliner. Dragon has a proven track record of successful crewed and cargo missions, having completed 38 trips to the ISS ⁵⁵. Starliner has docked only once to the ISS (in 2022) and never with a manned crew. In addition, SpaceX has invested heavily in the development of reusable rockets and spacecraft, which has significantly reduced the cost of launches.

⁵⁵ [Dragon Spacecraft Overview](#)

COMPETITION

Amazon Kuiper (Satellite Internet)



SpaceX's Starlink and Amazon's Project Kuiper are both aimed at providing high-speed broadband internet access to people around the world, especially in rural and remote areas. Both systems are in the early stages of development, but they have generated a lot of interest because of their potential to transform the telecommunications industry.

SpaceX's Starlink is planning to launch up to 42,000 satellites, while Amazon's Project Kuiper is planning to launch 3,236 satellites. Starlink has a significant advantage in terms of the number of satellites, which could help it provide more comprehensive global coverage.

Starlink satellites are in a lower orbit than Project Kuiper's satellites. The Starlink satellites orbit at an altitude of around 550 km, while Project Kuiper's satellites are

planned to orbit at an altitude of around 590 km. This means that Starlink has a shorter latency time, which could make its service more attractive to users who require real-time communication.

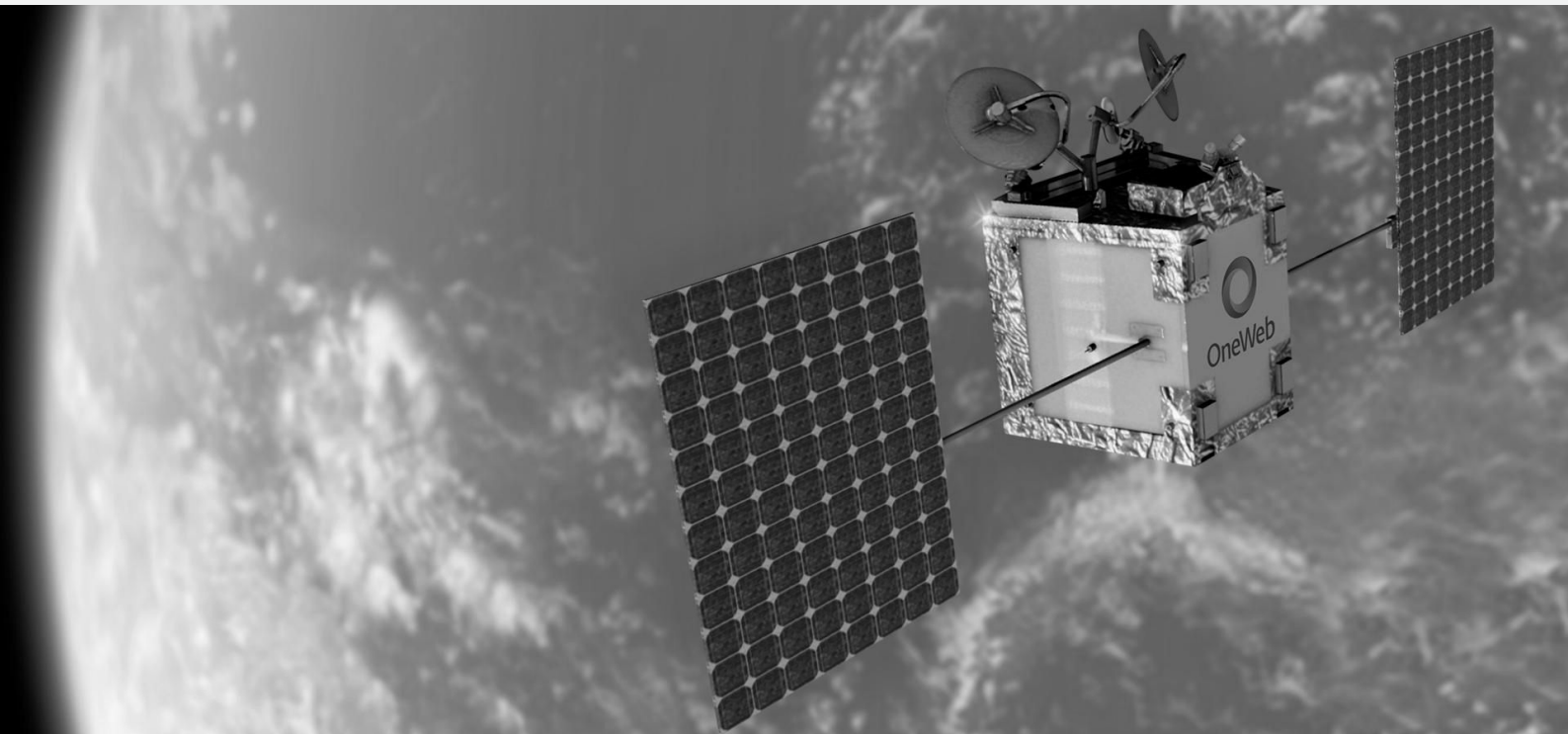
Both services claim to offer high-speed internet, with Starlink promising speeds of up to 1 Gbps and Project Kuiper aiming for speeds of up to 400 Mbps. Whilst Project Kuiper is expected to first start servicing customers by the end of 2024 ⁵⁶, Starlink already has over 2 million subscribers.

SpaceX's Starlink has a significant advantage over Amazon's Project Kuiper in terms of the number of satellites, orbit altitude, and latency time. Additionally, Starlink is far ahead in terms of rollout as Kuiper is yet to launch its services to customers.

⁵⁶ [Amazon Project Kuiper](#)

COMPETITION

Eutelsat Group (fka. OneWeb and Eutelsat) (Satellite Internet)



In September 2023, OneWeb announced a merger with Eutelsat, a French geostationary satellite operator. Satellite M&A consolidation has soared this year and many see this trend as the result of Starlink's pressure on the sector ⁵⁷.

Eutelsat mainly serves traditional telecommunications corporations, such as Orange and Deutsche Telekom. Whilst OneWeb also mainly serves corporations, it operates an LEO network akin to Starlink and can be considered a more direct competitor. Starlink has an advantage over OneWeb with the number of satellites (500 vs 5000), orbit altitude, latency time. OneWeb only targets businesses, industry partners, and government agencies so does not currently compete with Starlink in the direct-to-consumer market today.

In December 2022, SpaceX was contracted to build part of the rest of the OneWeb constellation with four launches worth at least

240 million dollars of revenue to SpaceX ⁵⁸. This is a clear demonstration of SpaceX's vertical integration advantage being able to build their own constellation with in-house rockets, reducing the cost significantly.

The Eutelsat Group state that combining Eutelsat's GEO service with OneWeb's LEO service will grant them access to new markets, such as fixed connectivity for backhaul and corporate networks ⁵⁹. Eutelsat also already targets government services as well as maritime and in-flight connectivity. All of these are markets for Starlink (/Starshield).

Whilst this merger, and the trend in M&A consolidation in general, will pose more competition to Starlink, it is difficult to imagine Eutelsat Group catching up with SpaceX's scale, innovation and vertical integration.

⁵⁷. [CNBC Article](#) ⁵⁸. [OneWeb Satellite Deployment](#)

⁵⁹. [Eutelsat-OneWeb Combination](#)

COMPETITION

Viasat & HughesNet (Legacy Satellite Internet)



Viasat, and HughesNet are legacy satellite internet service providers. However, there are significant differences between them and Starlink that can impact the quality of the service provided to customers.

Starlink is known for offering high-speed internet service with speeds of up to 100 Mbps, while Viasat and HughesNet offer slower speeds of up to 12 Mbps and 25 Mbps respectively ⁶⁰. Starlink has a much lower latency compared to Viasat and HughesNet. This means that Starlink is able to offer a faster and more responsive internet service, making it a better option for gaming, video conferencing, and other real-time applications.

Viasat and HughesNet offer more affordable pricing options compared to Starlink. However, Starlink offers more data for the price and doesn't have data caps, which can make it a better option for heavy internet users. Another place where Viasat and HughesNet had a leg up on Starlink was coverage but this is no longer the case given the rapid expansion of Starlink, which now covers the whole US ⁶¹.

Viasat and HughesNet offer more affordable pricing whilst Starlink offers higher speeds, lower latency, and more data for the price, making it a better option for those who prioritize high-quality internet service.

⁶⁰. [Viasat vs HughesNet Review](#) ⁶¹. [Starlink Coverage Map](#)

THE SPACEX ADVANTAGE

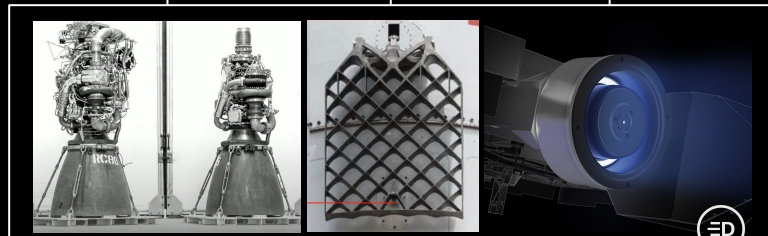
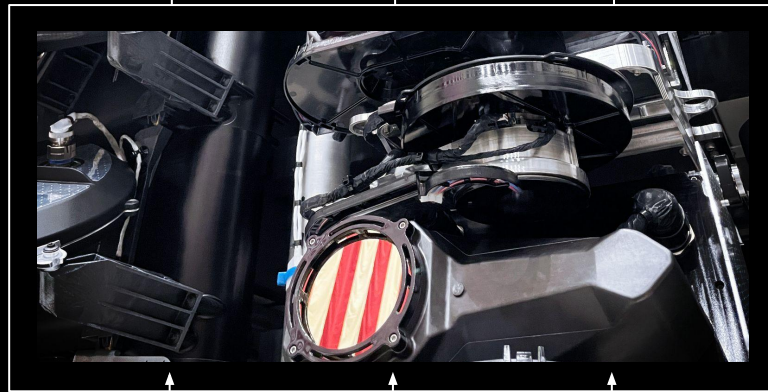
SpaceX's vertical integration as a company is a key competitive advantage that sets it apart from other players in the space economy. By controlling every aspect of the manufacturing process, from design to launch, SpaceX is able to optimize its operations in ways that are simply not possible for companies that outsource key components of their business.

One of the key benefits of SpaceX's vertical integration is its ability to rapidly iterate on its technology. By designing and building every component in-house, the company can quickly make improvements and test them in real-world scenarios. This means that SpaceX is constantly pushing the boundaries of what is possible in space travel, and its competitors struggle to keep up.

Another advantage of SpaceX's vertical integration is that it allows the company to be more efficient and cost-effective. By controlling every aspect of the manufacturing process, SpaceX is able to reduce waste and streamline operations, which ultimately results in cost savings that can be passed on to customers. This is particularly important in an industry where the cost of launching payloads into space can be prohibitively expensive.

SpaceX's vertical integration gives the company greater control over the quality of its products. By maintaining high standards

at every stage of the process, SpaceX is able to ensure that its rockets and other components are safe, reliable, and meet the needs of its customers. This is especially important given the high stakes involved in space travel, where even small defects can have catastrophic consequences.



LEADERSHIP TEAM



ELON MUSK

CEO/Founder

Elon Musk is a prominent entrepreneur and business leader who co-founded SpaceX, among other companies. Born in South Africa in 1971, Musk attended the University of Pennsylvania before moving to Silicon Valley to pursue a career in technology.

In 2002, Musk founded SpaceX with the goal of revolutionizing the space industry and making space exploration more accessible and affordable. Under Musk's leadership, SpaceX has become one of the world's leading space companies, with a track record of successful launches and a focus on developing reusable rocket technology.

In addition to SpaceX, Musk is also known for his role as the CEO of Tesla, the electric vehicle company he co-founded in 2003. He has also been involved in the development of other companies, including PayPal, The Boring Company, SolarCity, and Neuralink.

SpaceX's engineering culture is a huge advantage in the industry because it places a strong emphasis on innovation, rapid iteration, and a willingness to take risks. The company's founder and CEO Elon Musk, has encouraged his engineers to "think outside the box" and not be bound by conventional thinking. Additionally, SpaceX's engineers work collaboratively and are encouraged to take ownership of their projects, which fosters a sense of ownership and pride in their work. SpaceX's engineering culture has allowed the company to make significant strides in space exploration and has positioned it as a leader in the industry.

LEADERSHIP TEAM



GWYNNE SHOTWELL

President/COO

Gwynne Shotwell is responsible for overseeing the company's day-to-day operations and driving the company's strategic direction. Shotwell joined SpaceX in 2002 as the seventh employee and has since played a critical role in the company's success. Under Shotwell's leadership, SpaceX has become one of the world's leading space companies, with a proven track record of successful launches and a focus on developing reusable rocket technology. She is responsible for overseeing the development of SpaceX's Falcon launch vehicles, Dragon spacecraft, and Starlink satellite internet constellation.

Prior to joining SpaceX, Shotwell held several executive roles at Aerospace Corporation, a federally-funded research and development center. She has also served as a board member for multiple organizations, including the Space Foundation and the American Institute of Aeronautics and Astronautics.

Shotwell holds a Bachelor of Science in Mechanical Engineering and Applied Mathematics from Northwestern University and a Master of Science in Applied Mathematics from the Northwestern University McCormick School of Engineering and Applied Science. She has been recognized as one of the most powerful women in technology and has received numerous awards for her contributions to the space industry and her leadership at SpaceX.

LEADERSHIP TEAM



BRET JOHNSEN

CFO

Bret Johnsen is responsible for overseeing the company's long-term financial development, managing internal financial operations and interfacing with the financial community. With more than 20 years of financial leadership experience, Johnsen has held senior roles in high-profile, publicly traded companies.

Prior to joining SpaceX in 2011, Johnsen spent nearly a decade at Broadcom, the world's largest manufacturer of semiconductors for wired and wireless communications. During his tenure, he helped transform the company into a leading Fortune 500 technology firm, eventually becoming Vice President, Corporate Controller and Principal Accounting Officer. In this role, he led an 80-member accounting organization in nine countries.

Following his time at Broadcom, Johnsen served as Senior Vice President and CFO for Mindspeed Technologies. His leadership during the recession earned him the title of "CFO of the Year" from the Orange County Business Journal in 2010.

Johnsen received his Bachelor of Science in Accounting from the University of Southern California and his Master of Science in Finance from San Diego State University. He is a certified public accountant in the state of California. His extensive experience and proven track record make him a valuable asset to SpaceX's financial leadership team.

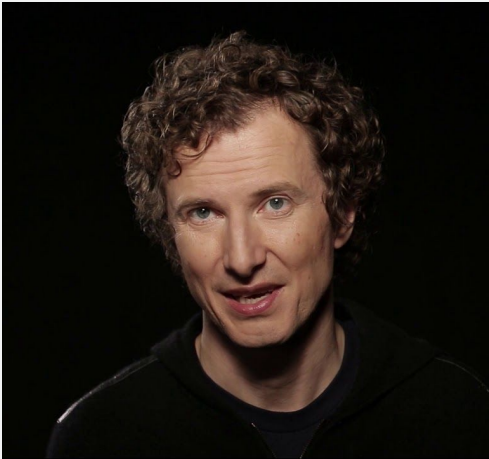
BOARD OF DIRECTORS



Kimbal Musk



Antonio Gracias



Luke Nosek



Donald Harrison



Steve Jurvetson



CONCLUSION

SpaceX presents a unique and compelling opportunity for individuals seeking to participate in the development of a pioneering company that has established itself as a leader in the commercial space industry. The company's remarkable track record of successful launches and its ambitious future plans, such as the development of Starship and the Starlink satellite internet service, position it well for sustained growth and prosperity.

In light of the escalating demand for satellite launches, space exploration, and space-based technologies, SpaceX is ideally positioned to capitalize on emerging markets.

By prioritizing reusability and cost-effectiveness, SpaceX is primed to disrupt conventional industry players and generate novel business prospects.

It is essential to acknowledge that investing in SpaceX carries inherent risk due to the dynamic regulatory and technological challenges that can impact the company's growth and profitability. Nonetheless, the organization's seasoned leadership team and steadfast dedication to innovation and efficiency provide a robust foundation for long-term success.

Markets & Contracts Appendices

Supporting market and contract details.



APPENDIX

Appendix A: Markets

Broadband Services Market ⁶²	Satellite Internet Market ⁶³
<ul style="list-style-type: none"> • \$419 billion in 2022 • ~\$875.1 billion in 2030 • CAGR of ~9.7% • Participants include: Time Warner Cable, Cox Communications, Singtel, AT&T, Verizon Communications, Qwest Communications International, Embarq, Bell Canada Enterprises and Sprint Nextel. 	<ul style="list-style-type: none"> • \$8.2 billion in 2022 • ~\$22.6 billion in 2030 • CAGR of ~13.6% • Participants include: Singtel Group, Freedomsat, EchoStar, Thuraya Telecommunications, Eutelsat Group, SpaceX, Viasat, Axess, and DSL Telecom.
Launch Services ⁶⁴	Space Tourism Market ⁶⁵
<ul style="list-style-type: none"> • \$14.5 billion in 2022 • ~\$40 billion in 2030 • CAGR of ~13.2% • Participants include: Antrix (India), ArianeGroup (France), Lockheed Martin (U.S.), China Great Wall Industry (China), United Launch Alliance (U.S.), Space International Services (U.S.), SpaceX (U.S.), Mitsubishi Heavy Industries (Japan), Northrop Grumman Systems (U.S.), (Germany), Blue Origin (U.S.) and Spaceflight Industries (U.S.). • Market Sectors: Satellite, Cargo, Human Spaceflight, Testing Probes, Launch Infrastructure 	<ul style="list-style-type: none"> • \$665 million in 2022 • ~\$8.67 billion in 2030 • CAGR of ~40% • Participants include: Airbus Group SE, Axiom Space, Blue Origin, Boeing, Orion Span, Space Adventures, SpaceX, Virgin Galactic, Zero2Infinity, ZERO-G

62. [Broadband Services Market](#) 63. [Satellite Internet Market](#) 64. [Space Launch Services Market](#) 65. [Space Tourism Market](#)

Appendix B: Known SpaceX Notable Contracts

Dragon (Cargo & Crew)	
NASA Commercial Resupply Service (CRS) 1 Contract 2008 - 2015	<ul style="list-style-type: none"> • ~\$2.75 billion • CRS missions 1 - 20
NASA Commercial Resupply Service (CRS) 2 Contract 2016 - 2026	<ul style="list-style-type: none"> • ~\$2.1 billion • CRS missions 21 - 35 with cost reductions realized
NASA Commercial Crew Transportation (CCtCap) 2011 - 2023	<ul style="list-style-type: none"> • ~\$2.6 billion • Development • 1 demo mission • 6 operation missions
Jared Isaacman, Shift4 Payments, Inspiration4 2011	<ul style="list-style-type: none"> • ~\$200 million • 1 flight • 4 private astronauts to LEO (no docking)
Axiom 1 - 4 2022 - ~2024	<ul style="list-style-type: none"> • ~\$880 million • 4 flights to ISS • 4 astronauts per flight
NASA Commercial Crew Operation 2023 - 2024	<ul style="list-style-type: none"> • ~\$766 million • 3 operational missions
Polaris Program 2023 and beyond	<ul style="list-style-type: none"> • ~\$600 - \$800 million • Private astronauts • 3 crewed flights
NASA Commercial Crew Operation 2024 and beyond	<ul style="list-style-type: none"> • ~\$1.4 billion • 5 operational missions
VAST Vast-1 Crewed Mission 2025	<ul style="list-style-type: none"> • 4 private astronauts to VAST's first space station module • \$ undisclosed

Appendix B: Known SpaceX Notable Contracts

Falcon 9	
Asiasat 6 & 8 2014	<ul style="list-style-type: none"> • \$104 million • 2 launches
NASA & USAF DSCOVR 2015	<ul style="list-style-type: none"> • \$97 million • US solar wind monitoring satellite
NASA Jason-3 2016	<ul style="list-style-type: none"> • \$82 million • Ocean surface topography satellite
Iridium Communications NEXT Satellites 2016 - 2018	<ul style="list-style-type: none"> • \$453 million • Iridium telecommunications satellites
National Reconnaissance Office (NRO) 2017 - 2022	<ul style="list-style-type: none"> • \$305 million • 4 launches
United States Air Force (USAF) GPS III (Vespucchi) 2018	<ul style="list-style-type: none"> • \$82.7 million • First GPS Block III satellite launched
Canadian Space Agency (CAS) RADARSAT 2019	<ul style="list-style-type: none"> • \$ Undisclosed • Constellation of next generation Canadian radar imaging satellites
United States Space Force (USSF) GPS III (03-06) 2020-2023	<ul style="list-style-type: none"> • \$339 million • 3rd through 6th GPS Block III satellites
NASA IMAP 2024	<ul style="list-style-type: none"> • \$110M • NASA's Interstellar Mapping and Acceleration Probe
VAST Haven 1 2025	<ul style="list-style-type: none"> • Delivering first ever module of a commercial space station • \$ undisclosed

Appendix B: Known SpaceX Notable Contracts

Falcon Heavy	
Arabsat-6A 2019	<ul style="list-style-type: none"> • \$ Undisclosed
USAF Space Test Program Flight 2 (STP-2) 2019	<ul style="list-style-type: none"> • \$160 million
USSF-44 2022	<ul style="list-style-type: none"> • \$130 million
USSF-67 2023	<ul style="list-style-type: none"> • \$332 million
EchoStar Jupiter-3 (EchoStar-24) 2023	<ul style="list-style-type: none"> • \$ Undisclosed
ViaSat-3 Americas Aurora 4A (Arcturus) Nusantara-H1-A 2023	<ul style="list-style-type: none"> • \$ Undisclosed
USSF-52 2023	<ul style="list-style-type: none"> • \$149 million
NASA GOES-U NOAA weather satellite (03-06) 2024	<ul style="list-style-type: none"> • \$152 million
NASA Europa Clipper 2024	<ul style="list-style-type: none"> • \$178 million • Reconnaissance of Jupiter's moon, Europa
NASA VIPER 2024	<ul style="list-style-type: none"> • \$ Undisclosed • Lunar rover mission
NASA Lunar Gateway construction 2024 - 2026	<ul style="list-style-type: none"> • \$331 million • First lunar orbit space station
NASA Lunar Gateway resupply missions 2026	<ul style="list-style-type: none"> • \$ Undisclosed • GLS-1, GLS-2
Nancy Grace Roman Space Telescope 2026	<ul style="list-style-type: none"> • \$255 million

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