

Space 2.0

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How large do you think
Space ecosystem is?

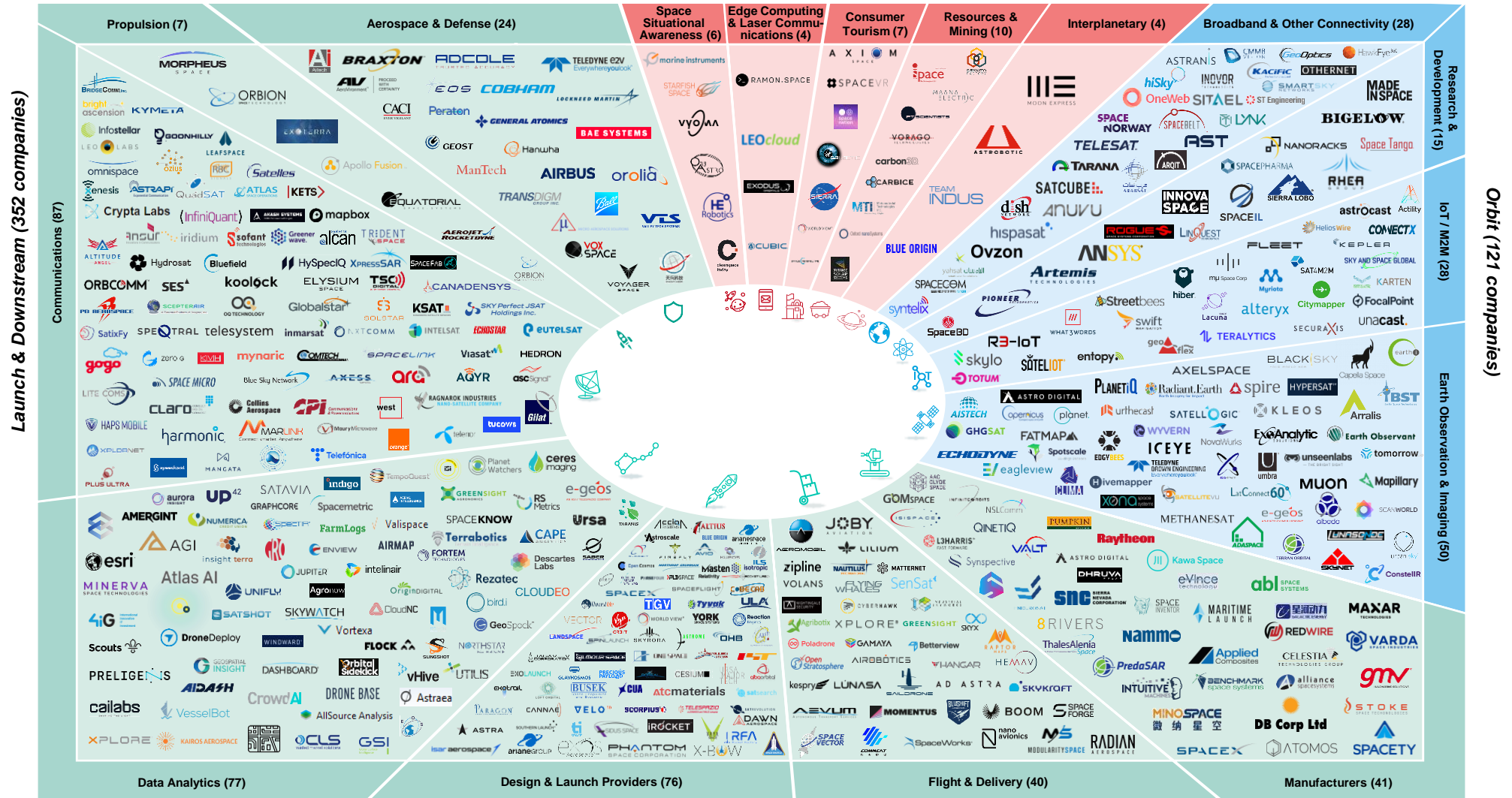
*- How many companies can you name other
than SpaceX*




Emerging Space sector is proliferating with a number of new entrants

More than 500 companies are either directly or indirectly involved with Space applications

Exploration (31 companies)



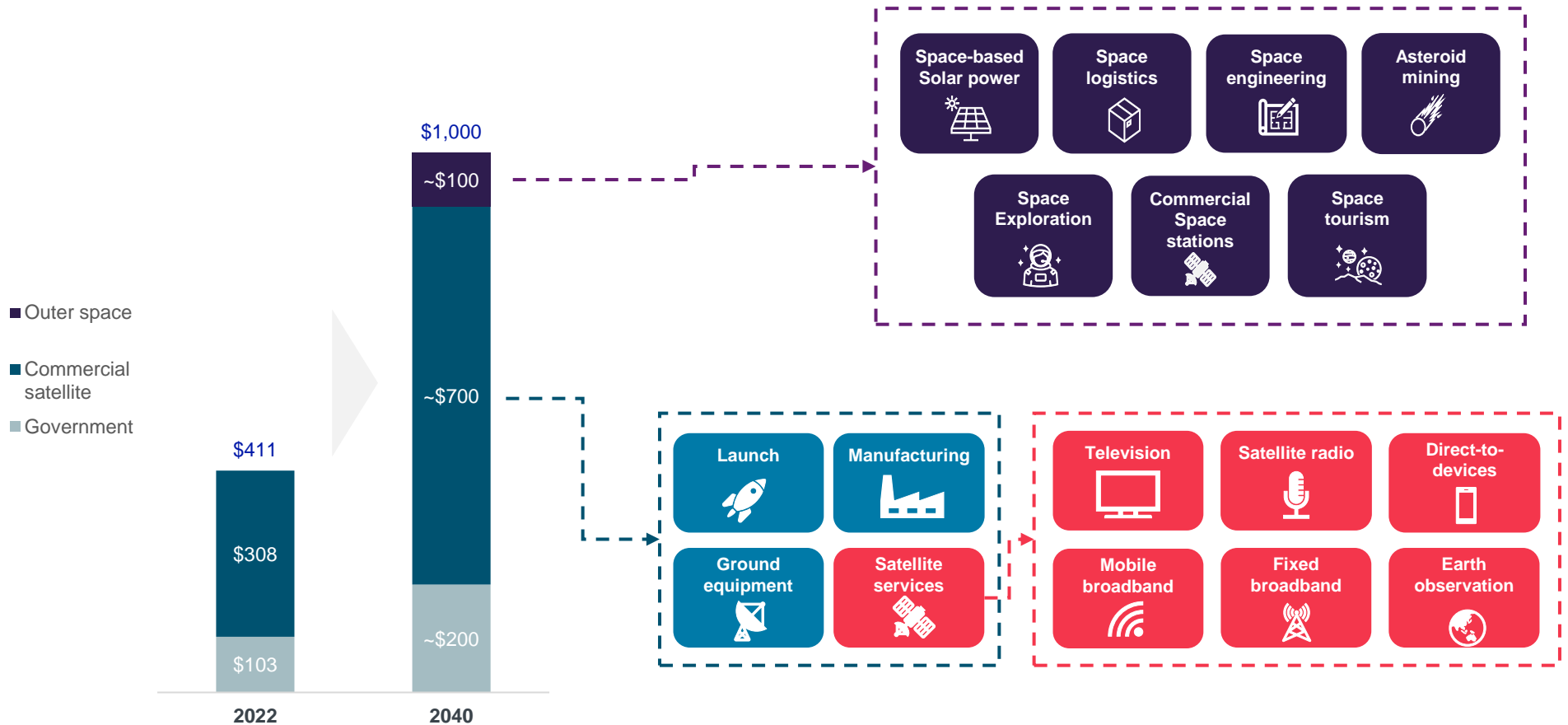


How big do you think
the global Space economy is?

Global Space economy

\$1 trillion economy by 2040

✓ Space industry is expected to be a \$1 trillion economy by 2040

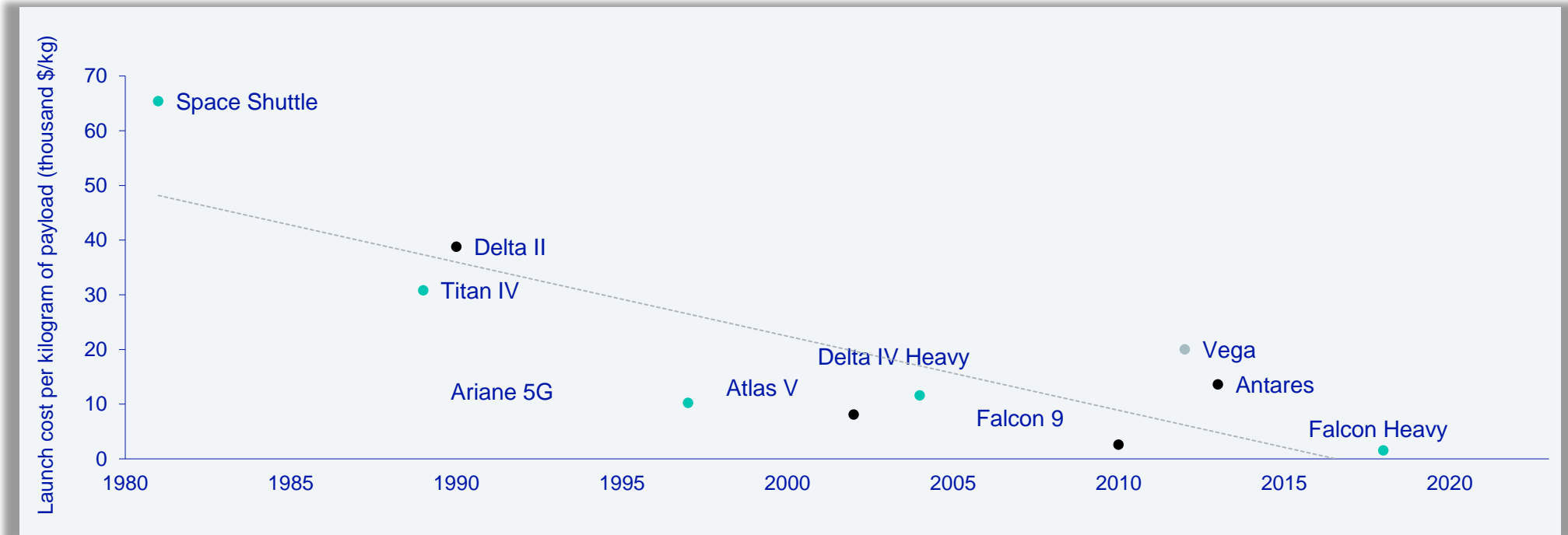


A high-angle, wide shot of the Earth from space. The planet's curved horizon is visible, with a thin, bright blue atmosphere. The surface of the Earth is dark, with some lighter patches of land and clouds. The background is a deep, dark blue/black space, filled with numerous small, reddish-brown particles or debris.

But...Why now?

Falling launch costs are reducing barriers to Space

✓ Reduced launch costs are a key enabler



✓ Affordable launch costs are a key enabler for making Space more accessible for a wider variety of applications

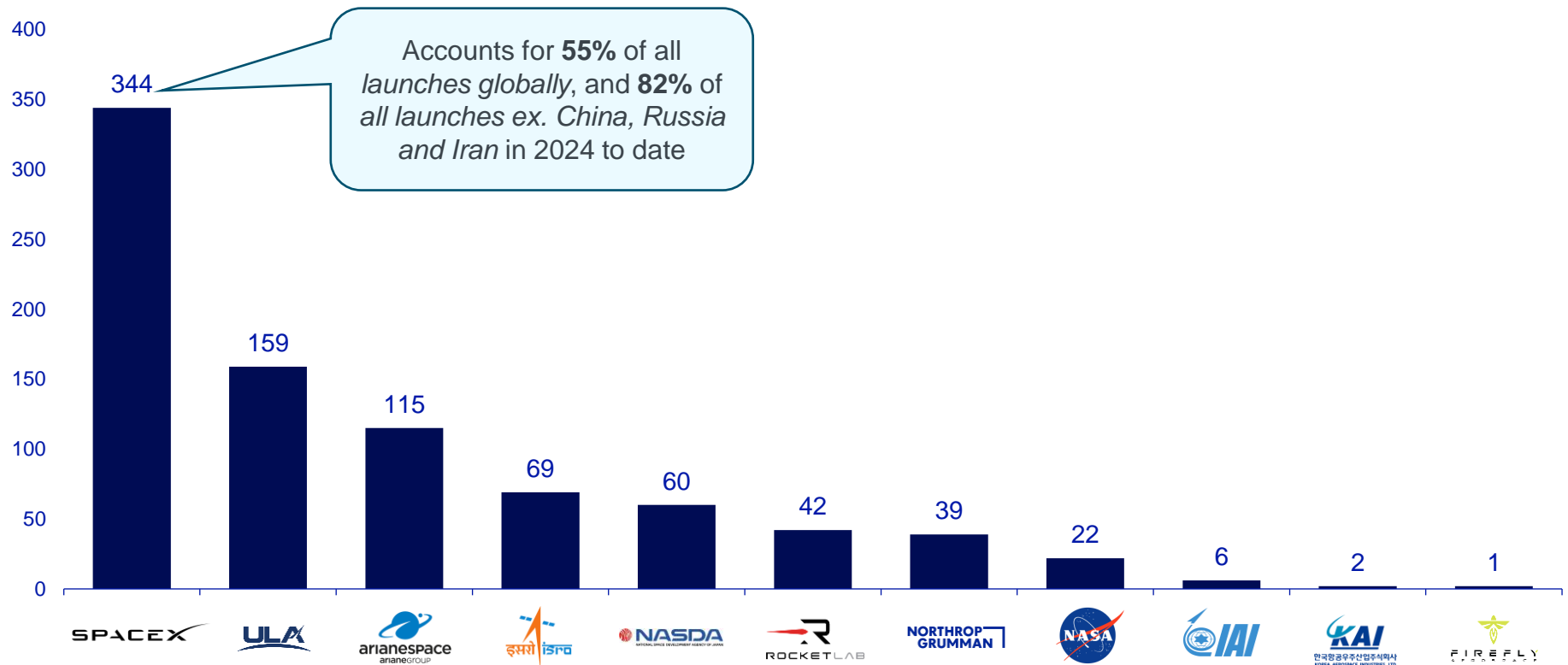
✓ Focusing on reusability, SpaceX's Falcon 9 and Falcon Heavy shifted Space economics by reducing costs to \$2,600 and \$1,500 per kg, respectively, lowering the average cost by more than 10x

✓ Research analysts expect launch costs to drop a further 95% to ~\$100/kg by 2040, driven by first and second stage usability, reduced faring / payload and material costs



Launch landscape has changed dramatically since inception of SpaceX

Cumulative launches since 2006^(a)



Case study: Starship could be an iPhone moment for Space

Starship can unlock vast array of opportunities that will transform Space economy

Starship's potential

- Starship is expected to reduce launch costs even further with second-stage reusability, scale efficiencies in weight delivery and more frequent launch cadence with **airline-like operations**
- This opens up the New Space frontier of proliferated LEO constellations that provide **“Space for Earth”** services
- Next decade will catalyze the tipping point to grow the **“Space for Space”** economy
- Similar to how Apple created tremendous value not only from its hardware but from the **entire ecosystem and the emergence of the app economy**, Starship could be the catalyst for an **entirely new Space-based commercial economy**





What are some of the trending areas in Space investing?

Today...

Space-based applications that are already creating value

Direct-to-Device

- D2D satellite offers mobile operators access to new customer segments and the ability to provide connectivity for existing customers when roaming out of range of a terrestrial signal
- Satellites present an efficient and “inexpensive” alternative to cover the whole globe compared to terrestrial solutions



Earth Observation

- Earth Observation imagery ranging from multi-spectral to hyper-spectral and SAR
- An established market with \$4bn+ in size
- Applications include atmospheric observation, ship detection, oil spill detection, sea ice monitoring, forest monitoring, soil moisture, critical infrastructure, etc.



IoT

- Satellite IoT has successfully enabled connections between everyday objects, machines, vehicles, etc.
- Advances in technology and computational power expected to further help reduce operating costs and response times of IoT architectures

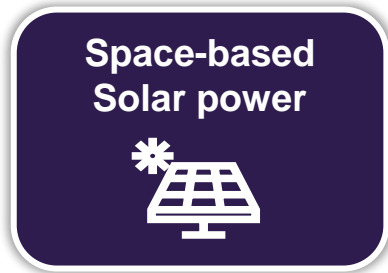


Laser communication

- Optical communication between satellites, orbits, and from Space to ground
- Fast, low cost, ultra high data rates of multiple Gigabits per second with low probability of detection and interference



Near future...



Space-based
Solar power

SPACE
SOLAR

solstitial

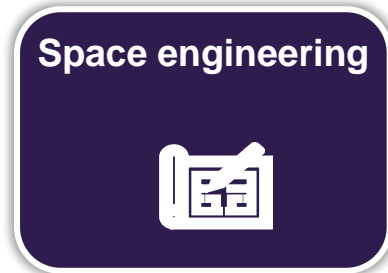


Space logistics

SPACEFLIGHT



Astroscale



Space engineering

SPACE TANGO

REDWIRE



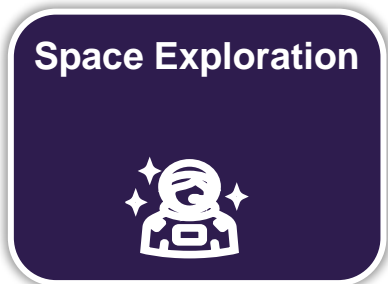
Asteroid mining

space
Technologies Ltd

VORAGO
TECHNOLOGIES

carbon3D

CARBICE

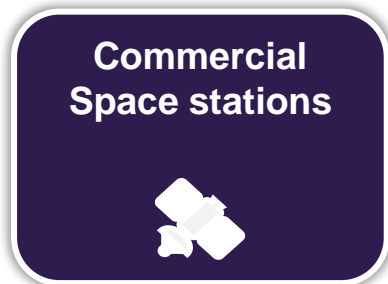


Space Exploration

ASTROBOTIC

INTUITIVE
MACHINES

space



Commercial
Space stations

SIERRA
SPACE BLUE ORIGIN

AXIOM
SPACE VAST



Space tourism

SPACE X



GALACTIC

BLUE ORIGIN





What are some of the key trends
in Space investing?

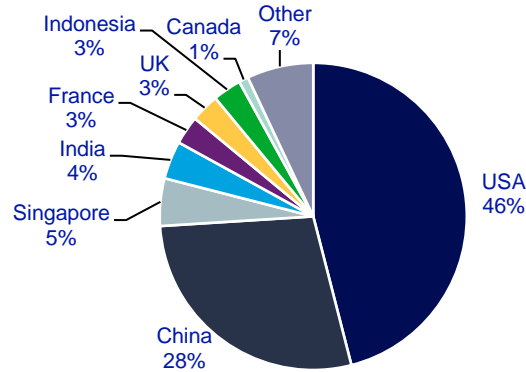
Space is a growing market with endless opportunities

Key Statistics

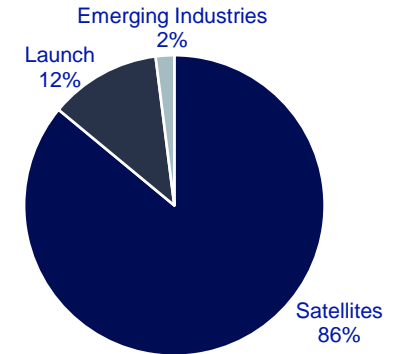
\$286 billion
Total private market equity investment since 2015

\$6.5 billion
Q1 2024 Total private market equity investment

Total investment by geography from 2015 to present

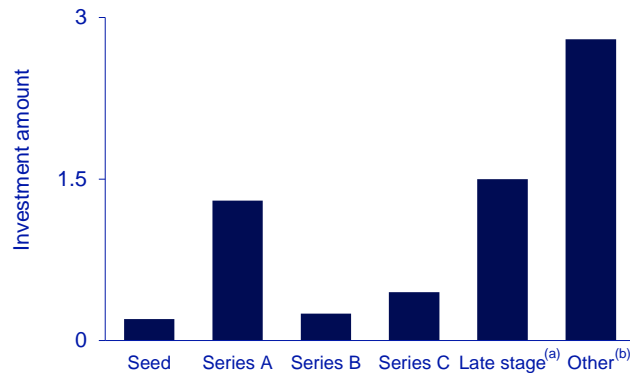


Total investment by industry from 2015 to present



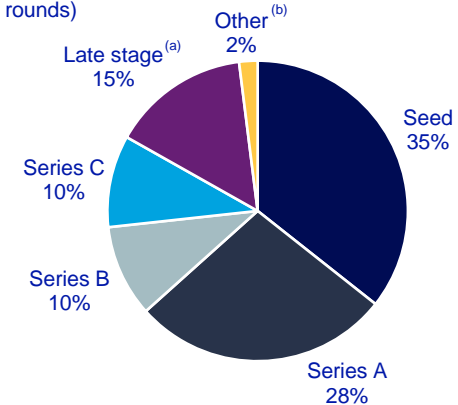
Investment amount by stage in Q1 2024

(in \$ billions)



Round share by stage in Q1 2024

(by number of rounds)



(a) Late-stage consists of Series D+ and Liquidity Rounds.

(b) Others include non-traditional investments like take-private transactions and self-capitalization from Jeff Bezos, Elon Musk, Richard Branson, and Robert Bigelow who are classified as individual investors providing large investments (hundreds of millions) in their own companies through unclassified rounds.

Source: Space Capital

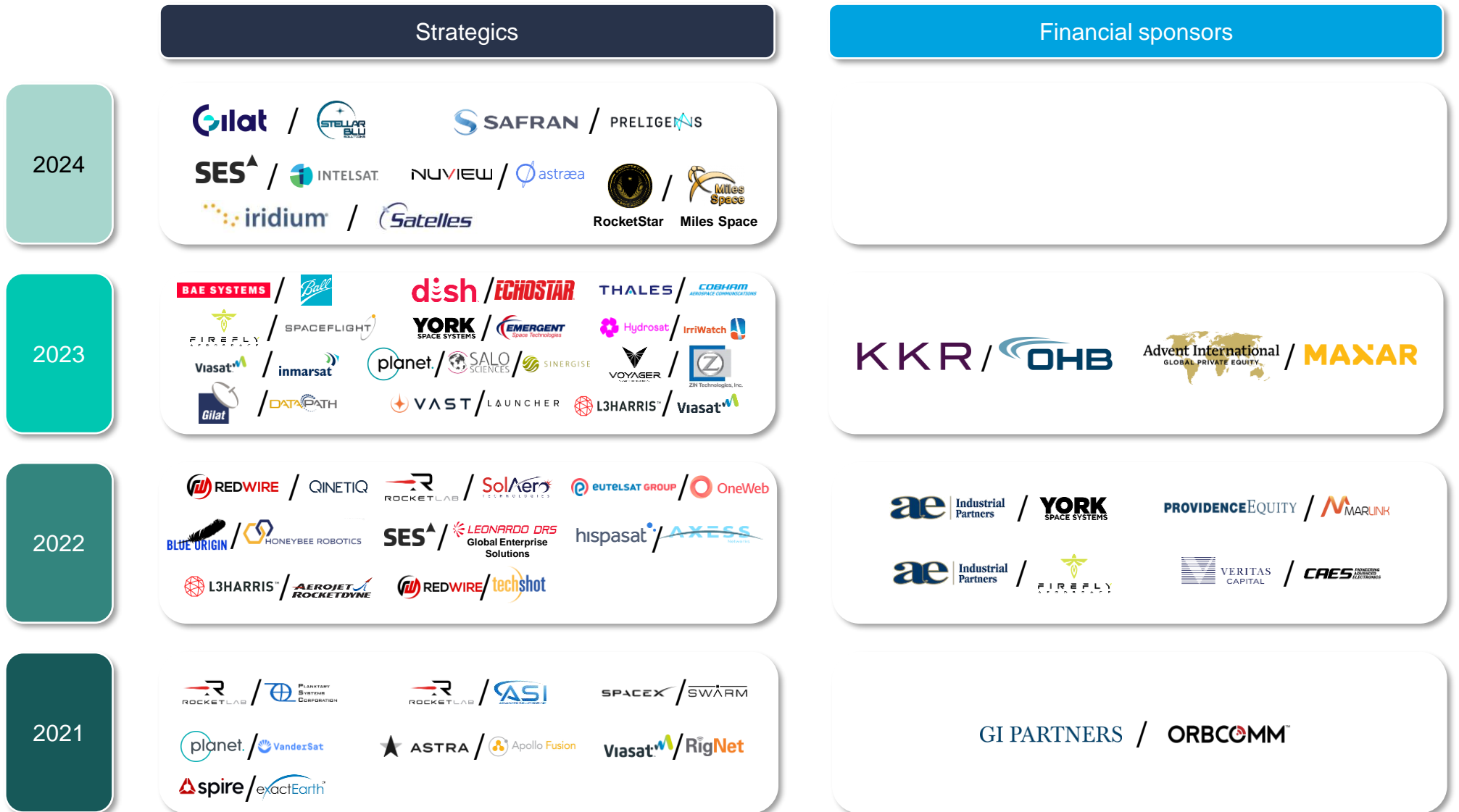


There has been a slow down in private placements due to macro economic conditions

Company	Latest funding round date	Latest funding round (\$m)	Total amount raised (\$m)	Latest valuation (\$m)	Select investors
	June 2024	\$235	\$425+	NA	Airbus Ventures, Lakestar, NATO Innovation Fund, UVC Partners
	June 2024	\$95	\$122	NA	Andreessen Horowitz, CRV, J2 Ventures, Shield Capital, XYZ Venture Capital
	November 2023	\$300	\$471	\$1,800	AE Industrial Partners, DADA Holdings, Mitsui, Reuben Brothers
	November 2023	\$138	\$424	\$550	Blackrock, Eclipse, Explorer 1, RTX Ventures, XN
	October 2023	\$100	\$175	NA	Industrious Ventures, In-Q-Tel, MaC Ventures, Point72 Ventures
	September 2023	\$290	\$1,746	\$5,300	AE Industrial Partners, BlackRock, Coatue, General Atlantic
	August 2023	\$350	\$606	\$2,110	Aljazira Capital, Boryung
	April 2023	\$200 ^(a)	\$553	\$1,600 ^(a)	Andreessen Horowitz, Baillie Gifford, BlackRock, Fidelity, Venrock
	January 2023	\$750	~\$10,000	~\$137,000 ^(b)	DFJ Growth, Phoenix Capital Ventures, Sequoia Capital
	March 2022	\$100	\$200	NA	Sompo Japan Insurance, Nomura SPARX Investment, Pavilion Capital
	February 2022	\$136	\$304	NA	BAE Systems, Kajima Ventures, Molten Ventures, Seraphim Space
	November 2021	\$140	\$156	~\$550 ^(c)	Blackrock, Cendana Capital, Foundation Capital, Kima Ventures



Disruption caused by new Space players has fueled M&A activity



How can Deutsche Bank help you?



Deutsche Bank's Space Investment Banking team offers a differentiated approach to M&A advisory and equity & debt capital raising

Comprehensive coverage of the Space sector on a global basis, focusing on established, early stage, and growing companies

Strategic dialogue with corporates as well as investors

Full suite of product capabilities including M&A, debt capital markets, equity capital markets, project financing, structured credit and export financing and restructuring






Differentiated and broad-based equity research coverage of the Space sector, including in-depth industry coverage initiation reports






20+
Transactions since 2021

\$33bn+
Transaction value since 2021

300+
C-suite relationships

Most recent transactions

 Iridium Communications USD1.6 billion TLB Repricing Joint Bookrunner, Admin Agent June 2024	 SES EUR4.6 billion Acquisition of Intelsat Financial Advisor, Lead Structuring Bank and Co-Underwriter April 2024	 Rocket Lab USD300 million 4.25% Convertible Notes due 2029 Joint Bookrunner February 2024	 AST SpaceMobile USD100 million USD100 million Follow-on Offering Joint Bookrunner January 2024	 Iridium Communications USD1.5 billion USD1.5 billion TLB Left-lead Arranger September 2023
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 BAE Systems USD5.6 billion Acquisition of Ball Aerospace business from Ball Corporation Corporate Broker August 2023	 OHB SE EUR1.2 billion Voluntary takeover offer by KKR to free float shareholders of OHB and a 10% capital increase Sole Financial Advisor August 2023	 SpaceX Asset-backed loan Bookrunner June 2023	 Mitsui & Co. / Spaceflight Inc. Undisclosed Sale of Spaceflight to Firefly Aerospace Sole Financial Advisor June 2023	 Spire Global Warrant tender Sole dealer manager December 2022
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 Intelsat USD6.7 billion Exit financing Joint bookrunner February 2022	 Iridium Communications USD1.0 billion Rates hedge Sole bookrunner December 2021	 Arqit / Centricus USD1.0 billion USD1.0 billion deSPAC Financial Advisor and Capital Markets Advisor September 2021	 Rocket Lab / Vector USD4.1 billion USD4.1 billion deSPAC Sole Financial Advisor and Capital Markets Advisor August 2021	 Seraphim Space / Investment Trust plc GBP250 million Initial Public Offering Sole Sponsor Joint Bookrunner July 2021
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