

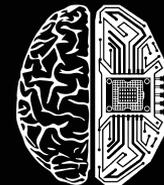
INVESTMENT DIGEST

SpaceTech Industry 2021 / Q2

Teaser

July 2021

www.spacetechnology.com



SpaceTech
Analytics

Executive Summary

The space economy is currently estimated to be about **\$4T** and we expect it to reach **\$10T** in value by **2030**. While it is still largely dominated by huge aerospace and satellite companies, serving government-funded interests, private and public companies are increasingly seizing the initiative.

North America still dominates the industry, though Asia is going to challenge the order. Europe also takes part in the race and provides quite a lot of funding opportunities.

Generally, the Cloud, Satellite Communication, Space Travel, and Exploration sectors receive the largest fundings worldwide, but other sectors' fundings are reported as well. In the case of publicly traded companies, the Cloud sector also holds the largest share by total funding amount, followed by the Material & Product Supply, and Satellite Communication sectors.

The number of IPOs is growing while **SPAC deals** are becoming a common way to go public. Since the industry is expanding, a number of new space-focused investment funds are appearing. Moreover, prominent large funds have also placed stakes in the industry.

Per to the SpaceTech stock index, publicly traded companies from the SpaceTech industry provide better returns and are less volatile than the entire market (as represented by the **S&P 500 index**). This index includes more than 350 corporations operating in the space and IT sectors in 2021.

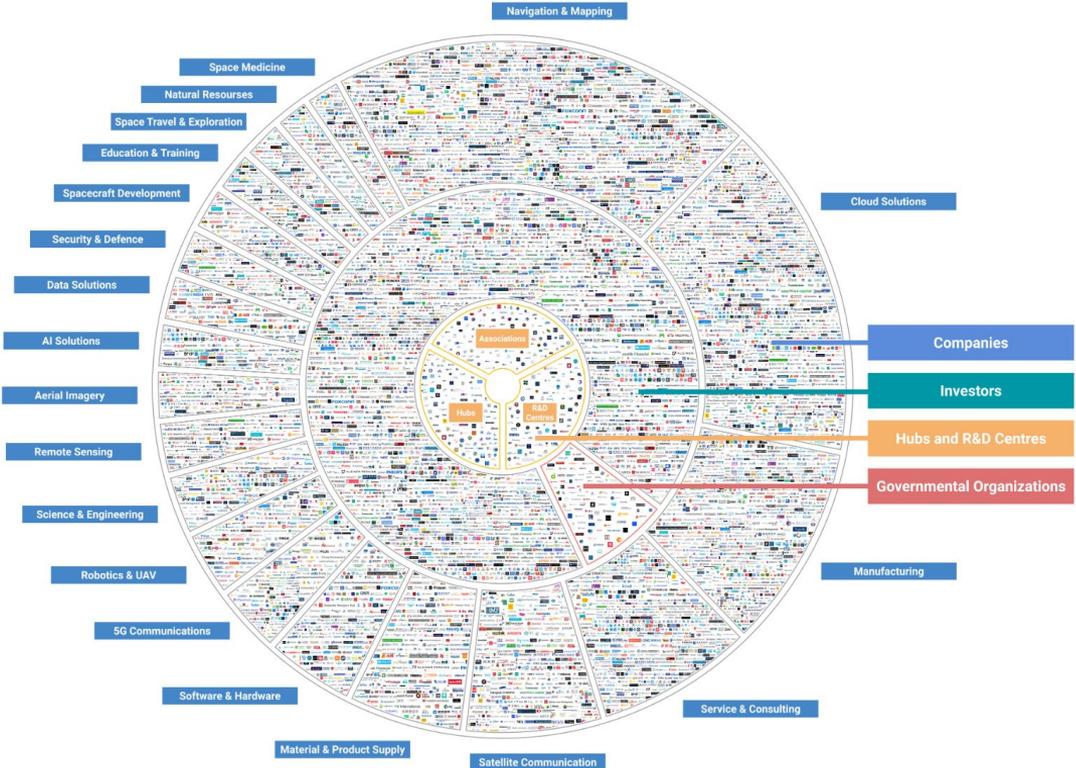
To provide deeper insight, this report provides the profiles of an additional ten publicly-traded companies with detailed analyses. Almost all well-established companies experience steady growth; the same could be said about smaller companies that went public recently. However, the growth of the latter is more volatile. But there are some exceptional companies displaying **300%+ annual growth**. Thus, investing in SpaceTech is becoming impossible to ignore.

Moreover, more investment instruments are appearing. Particularly, a new **space-focused ETF** and the first listed **Space Investment Trust** have been founded, with more to come.

Accordingly, there is a growing need for a comprehensive overview of these growing markets. This digest is designed to provide such an overview for both novice and experienced space investors and to advise the market, the industry, and the public sectors.

Global SpaceTech Ecosystem 2021

10 000 Companies 5 000 Investors 205 R&D Hubs and Associations 135 Government Organizations



USA	Canada
UK	Germany
China	France
India	Israel
Spain	Japan
Australia	CEE*
Singapore	France
Brazil	Ireland
Gulf Region	EU

* – Central and Eastern Europe

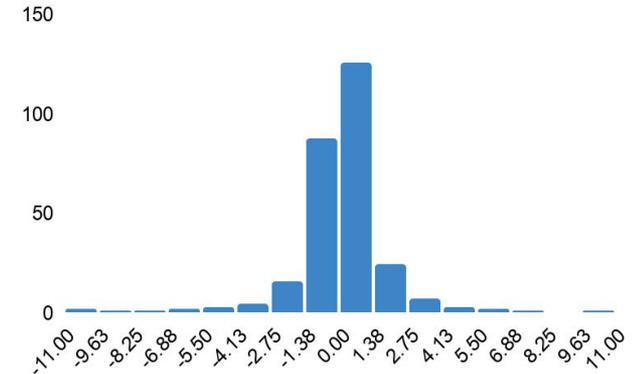
SpaceTech Stock Market

Our SpaceTech stock index includes more than **350** corporations operating in the space and IT sectors in 2021. Their market capitalization demonstrates a significant growth, exceeding that of the entire market (represented as the **S&P 500 index**), as well as the general **SpaceTech industry** indices (ROKT and ITA). The SpaceTech stock market segment is, therefore, less volatile compared to them (as measured by standard deviation).

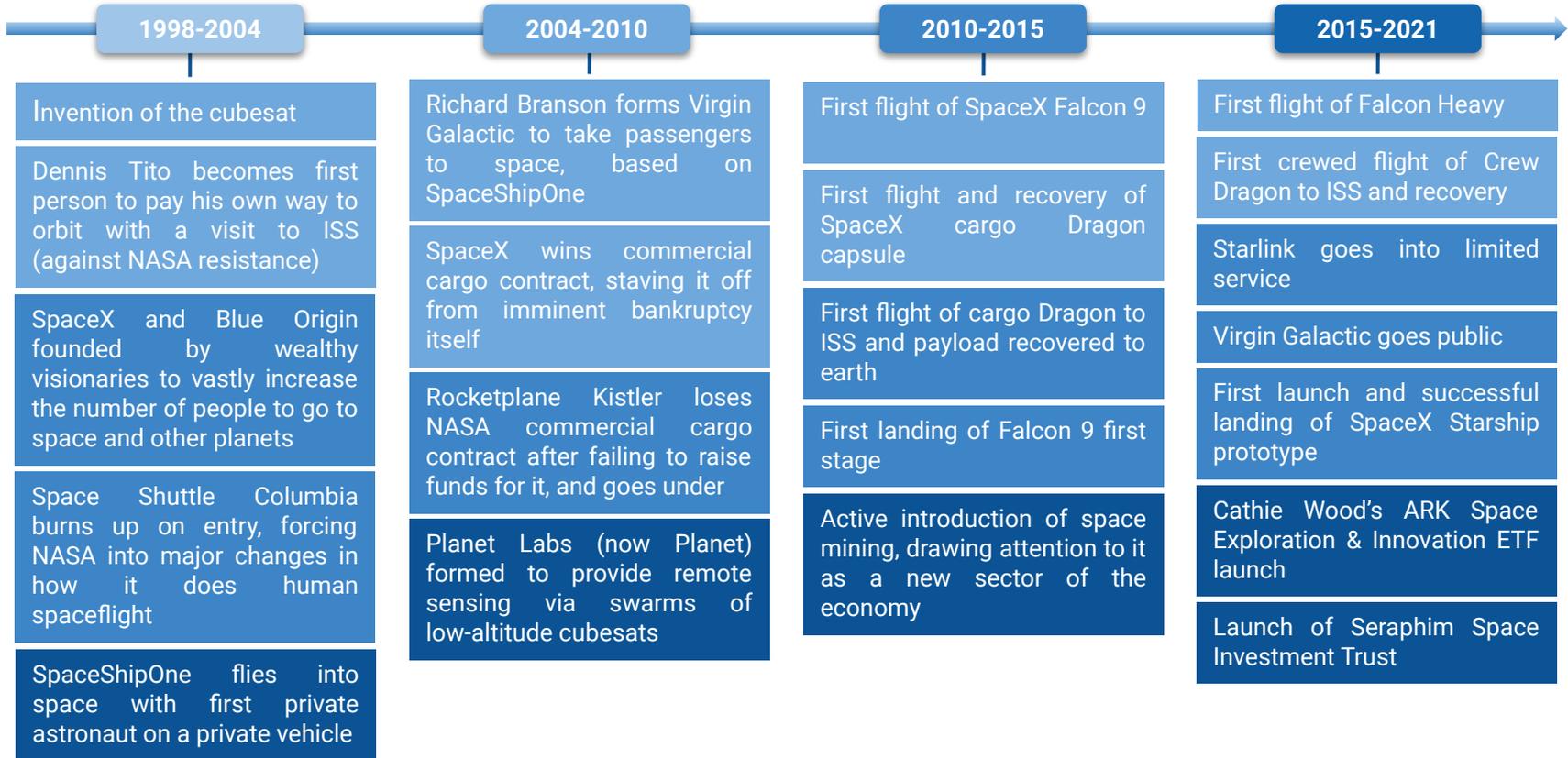
Interestingly, distribution of returns in the **SpaceTech** stock market segment is right-skewed - a demonstration of the low likelihood of left tail events (sometimes referred to as “black swan events”) happening. Despite the negative skewness, the value is small, which means that the likelihood of the so called “black swan event” is much lower in comparison to the **S&P 500**. A negative **Curtosis** means that the distribution is flatter than a normal curve with the same mean and standard deviation.

Index	Correlation with Longevity Market	Average Daily Return in 2020	Average Daily Volatility in 2020	Skewness	Curtosis
SpaceTech Index	-	0.08	2.07	-0.1	-0.98
ROKT	0.97	0.07	2.53	0.01	-0.96
S&P500	0.71	0.08	2.08	-0.41	-0.4
ITA	0.74	0.02	2.91	0.68	0.6

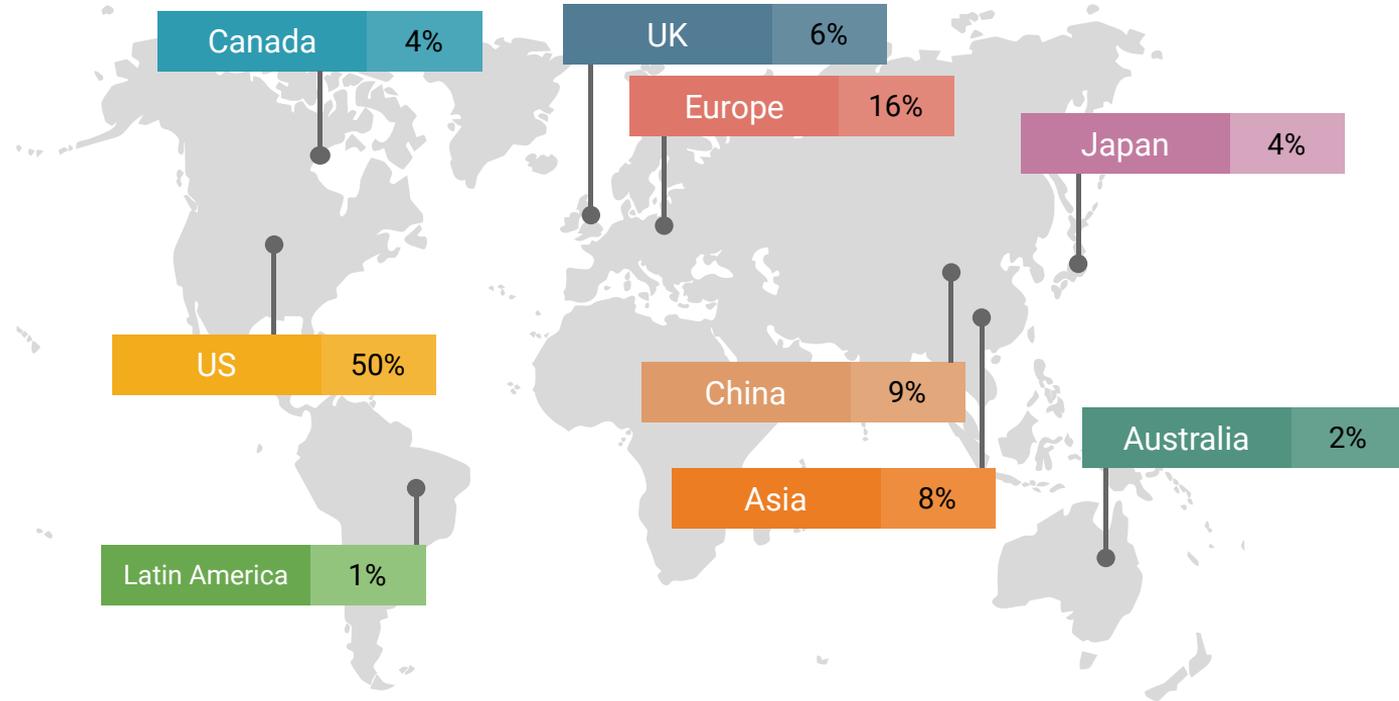
SpaceTech Stock Returns Histogram



SpaceTech Industry Market Timeline



The US Has a Large Plurality of Investors as Well as Space Companies

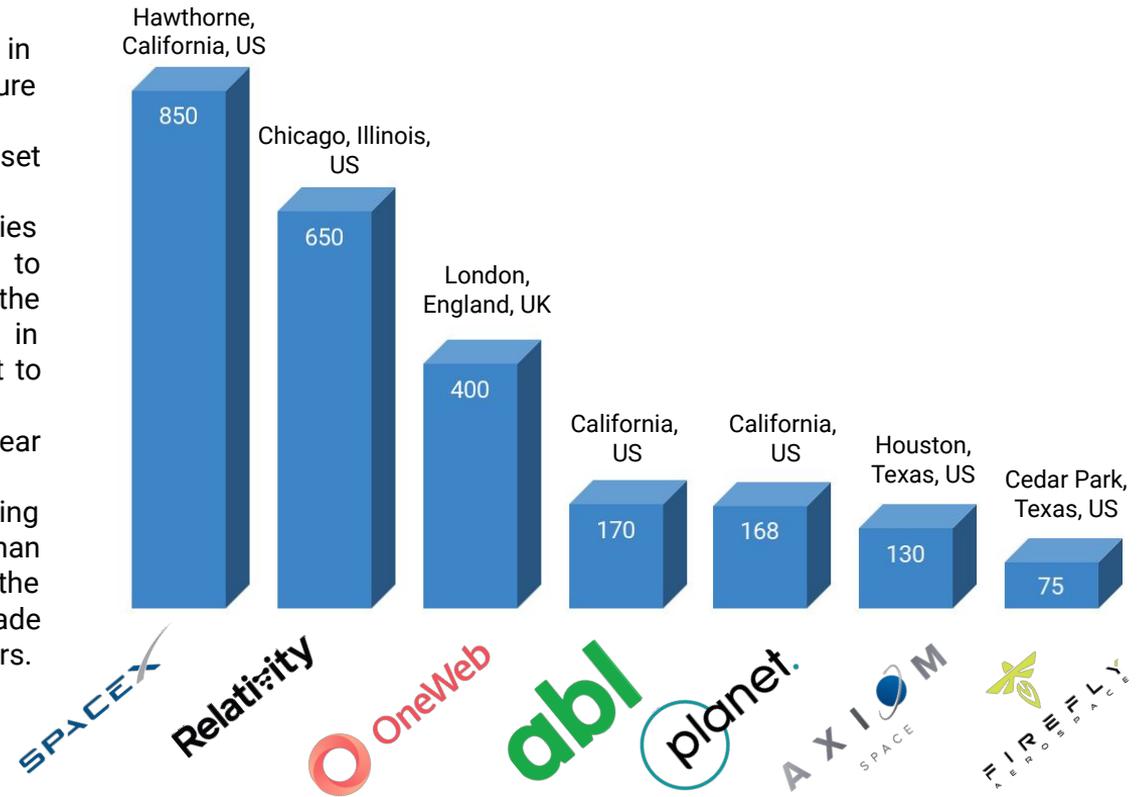


The chart represents the distribution of SpaceTech-focused investors by country or region. The expected observation is that the overwhelming number of investors are from the USA. That fact lays in line with the number of companies and the amounts of investments originating from the USA. One of the main explanations could be the availability of developed financial markets there.

Private Investment In SpaceTech Is Soaring In 2021

- Private investors deployed another **\$1.9B** in **SpaceX, OneWeb** and other space infrastructure companies in the first three months of 2021.
- Private investment in space companies last year set a new annual record with **\$8.9B**
- About **\$1.1B** was invested in launch companies overall in the first quarter of 2021, according to Space Capital, bringing the total to **\$19.9B** over the past decade. Satellite companies raised **\$0.9B** in the first quarter of 2021, increasing the amount to **\$11.4B** in the 10 years.
- Space equity investment soared 152% year-on-year to **\$3.1B** when excluding SPACs.
- Larger and later stage (**Series C and D**) financing rounds are planned that will account for more than **75%** of all investments in 2021, demonstrating the maturing of the ecosystem as investors made bigger commitments to emerging category leaders.

Biggest SpaceTech Private Investment Deals (in \$M)



The Largest SPAC Deals

Special-purpose acquisition corporation (SPAC) is a corporation already listed on a stock exchange. It exists with the main purpose of acquiring a private company, thus making it public. Within the SpaceTech Industry it became common to go public through mergers with a SPAC as it allows a company to bypass the traditional IPO procedures.



SPAC: New Providence Acquisition Corp.

Date: Q2 2021

Capital Raised: \$ 462 M

Company Value: \$1.2 B



SPAC: NavSight Holding Inc..

Date: Q2/Q3 2021

Capital Raised: \$ 475 M

Company Value: \$1.6 B



SPAC: Stable Road Acquisition Corp.

Date: Q1 2021

Capital Raised: \$ 310 M

Company Value: \$1.2 B

SPAC: dMY Technology Group, Inc. IV

Date: Q3 2021

Capital Raised: \$ 545 M

Company Value: \$2.8 B



SPAC: Osprey Technology Acquisition Corp.

Date: Q3 2021

Capital Raised: \$ 450 M

Company Value: \$1.5 B



SPAC: Holicity Inc.

Date: Q2 2021

Capital Raised: \$ 500 M

Company Value: \$2.1 B



SPAC: Vector Acquisition Corp.

Date: Q2 2021

Capital Raised: \$ 750 M

Company Value: \$4.1 B



Top Manufacturing Companies

Funding Round

IPO	  	  	
Rounds C-F		 	 
Round B			
Round A	 		
Seed	  		
	Parts	Hardware	Launch Vehicle

Manufacturing focus

The majority of manufacturing companies have already launched their IPOs; however, some of them are still growing

100 Leading Companies in SpaceTech Sector (According to the Number of Employees)

0-1K



1-5K



5-20K



>20K



Investor Type: Venture Capital

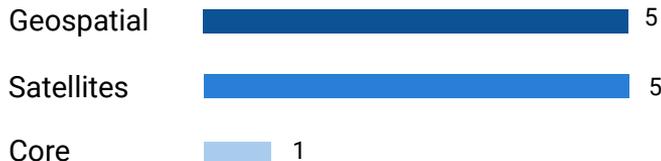
Value of Funds

\$ 16 000 000

Number of Investments

20

Space Sectors by Number of Investments:



Headquarters:

New York, New York,
United States

Founded Date:

2017

Number of employees:

1-10



SPACE CAPITAL®

Space Capital aims to unlock the value in space technology stacks such as GPS, geospatial intelligence, and communications. The company's primary competency is in sourcing and evaluating early-stage investment opportunities.

<https://www.spacecapital.com/>

Investment Stages



Invested in

SKYWATCH

Picterra

 Nanoracks

Publicly Traded Companies Descriptive Statistics

Company	Capitalization (B\$)	Mean Daily Return	Volatility of Daily Returns	Beta	ROA	ROE	Operating Margin	EV/EBITDA	Net Income (B\$)
 BOEING	144.5	0.06%	5.36%	1.63	-3.26%	N/A	-13.52%	-34.40	-11.78
 LOCKHEED MARTIN	106.2	-0.03%	2.5%	0.98	11.24%	142.73%	13.72%	11.49	7.01
AIRBUS	102.6	0.17%	6.09%	1.89	1.11%	-6.25%	4.01%	21.24	-0.29
 SAFRAN AEROSPACE · DEFENCE · SECURITY	64.1	0.07%	4.67%	1.46	2.15%	3.03%	8.45%	20.38	0.352
GENERAL DYNAMICS	53.7	0.03%	2.43%	1.13	5.10%	22.21%	10.98%	13.09	3.17
 TRANS DIGM GROUP INC.	35.6	0.08%	4.32%	1.67	5.08%	N/A	31.98%	31.16	0.178
	26.97	0.06%	2.41%	0.43	4.71%	24.27%	10.74%	17.48	0.752

These Top Publicly Traded Aerospace Companies differ in capitalization while mean daily return distribution is quite dense. However, the general trend is hardly traceable based on provided indicators. Lockheed Martin is a huge firm with positive net income while Boeing and Airbus have negative net income and are the most volatile. Based on other indicators, the situation of Boeing looks problematic. Other companies demonstrate quite good dynamics.

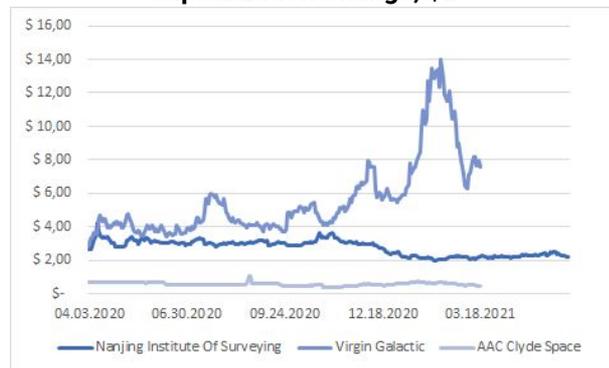
Large
Medium
Low

SpaceTech IPOs in 2019-2021

Despite the covid crisis, all newly public companies announced the successful closing of the IPO. They show volatile dynamics in market capitalization, and for the most part, they lost value somewhat (not unusual for IPOs). Clearly Virgin Galactic experienced a non-trivial sharp increase and then just as large a retreat. There are two additional graphs for missing companies in the Company Profile section of this digest.

The net income of almost all listed corporations for these companies currently remains negative, with the interesting exception of Nanjing Institute Of Surveying. Despite the fact that it experienced a steady decline in capitalization, it is the only company with positive net income. Note that three of the five newcomers are not from the USA and two of them are from China. As with the established companies on the previous chart, major negative market events in 2020 did not significantly affect these companies, though neither was it favorable to them.

Capitalization Change, \$B



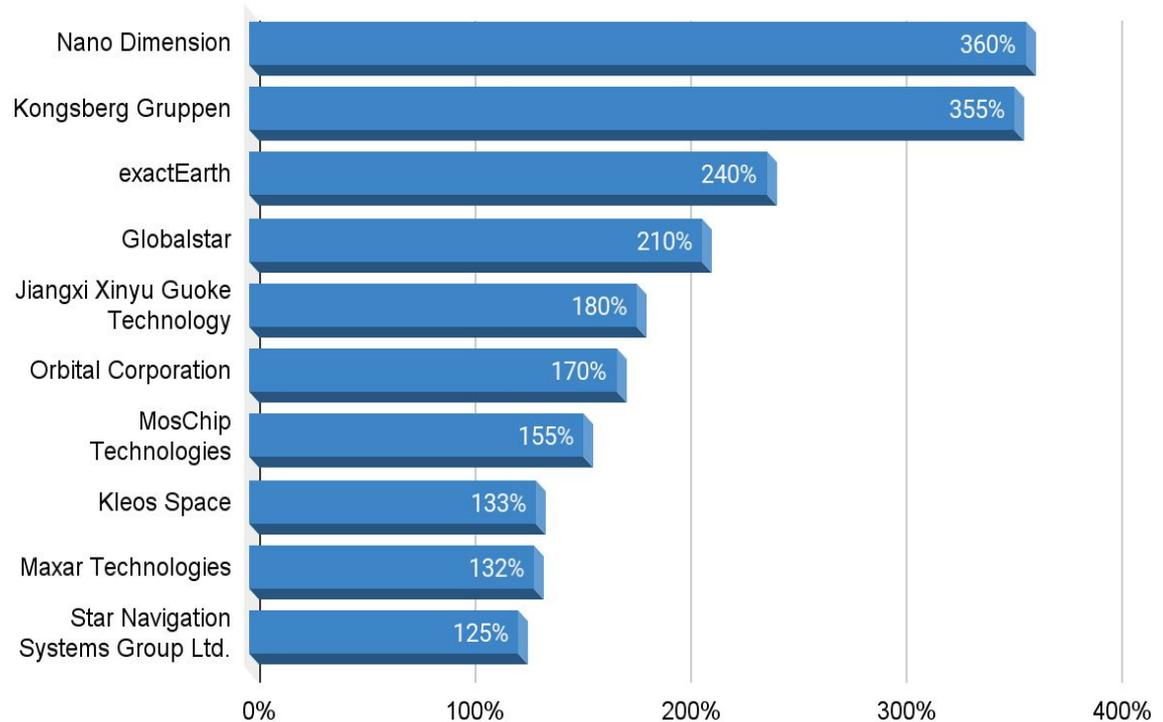
Name	Country	Funding Amount (M\$)	Foundation Year	IPO Date	Capitalization (B\$)	ROA	ROE	Profit Margin	Operating Margin	EV/EBITDA	Net Income (M\$)
AAC Clyde Space	Sweden	N/A	2005	19.03.2019	0.071	-0.0212	-0.0636	-0.2732	-0.1705	-27.58	-32.79
Virgin Galactic	USA	20	2004	28.10.2019	8.35	-0.2849	-0.9563	0	0	-24.12	-397.76
Nanjing Institute Of Surveying	China	N/A	1991	03.04.2020	2.25	0.0281	0.0770	0.1385	0.1372	18.25	75.33
VeriSilicon Holdings	China	96.7	2001	21.08.2020	32.31	-0.0124	-0.0174	-0.0198	-0.0304	-2485.34	-30.3
AmpliTech Inc.	USA	23	2002	17.02.2021	0.039	-0.1170	-0.2833	-0.4984	-0.4631	-26.19	-1.58

The Top Companies Are Experiencing Explosive Growth in 2021

There was a market trend toward an increase in **capitalization** of the majority of SpaceTech companies in 2021:

- With a rate of **return of 356%**, Nano Dimension experienced the largest growth. Its capitalisation increased more than **a 3.5 times** in 2020.
- With a growth rate of **354%**, Kongsberg is the second fastest growing company in 2020.
- The third largest company is exactEARTH, whose **growth rate stood at 247%**.
- Other companies (seen on the right) also demonstrated dramatic growth in 2020 and are, therefore, also worth looking at.

Companies by Annual Return



Space Exploration & Innovation ETF (ARKX Top 10 Holding According to Their Weight)*

Weight	Company		Ticker	Market Price	Market Values
9.63%	TRIMBLE INC		TRMB	\$83.26	\$60,057,352.98
6.81%	THE 3D PRINTING ETF		PRNT	\$38.77	\$42,486,414.66
6.41%	KRATOS DEFENSE & SECURITY		KTOS	\$28.20	\$39,981,339.60
5.77%	IRIDIUM COMMUNICATIONS INC		IRDM	\$39.56	\$36,010,320.76
5.40%	L3HARRIS TECHNOLOGIES INC		LHX	\$223.99	\$33,691,679.84
4.28%	LOCKHEED MARTIN CORP		LMT	\$383.11	\$26,699,319.01
4.25%	JD.COM INC-ADR		JD	\$4.98	\$26,482,264.97
4.14%	THALES SA		HO	\$106.71	\$25,804,456.36
3.56%	AMAZON.COM INC		AMZN	\$3719.34	\$22,174,705.08
3.42%	KOMATSU LTD		6301	\$23.81	\$21,327,647.79

* according to their weight as for 12.07.2021

Leading Companies by Investment and Funding Stage*

Company	Total Investments in \$M	Last Transaction in \$M	Funding Stage	Headquarters
 Nutanix	1150	750	Post-IPO Debt	San Jose, US
 Wipro Technologies	1100	1100	Post-IPO Equity	Bengaluru, India
 SolarWinds	533	315	Post-IPO Secondary	Austin, US
 Sirius XM	526	526	Post-IPO Debt	New York, US
 EchoStar	368	24	Venture Round	Englewood, US
 ViaSat	313	175	Post-IPO Equity	Carlsbad, US
 UrtheCast	185	2	Post-IPO Equity	Vancouver, Canada
 Latecoere	107	107	Post-IPO Equity	Toulouse, France
 VeriSilicon Holdings	97	22	Venture Round	Shanghai, China

- The largest fundings occurred during Post-IPO stage.
- Having attracted \$1.15B in investments, Nutanix is considered the largest recipient of investment.
- Next biggest, Wipro Technologies and SolarWinds, attracted \$1.1B and \$0.52B in 2021.
- The majority of the companies listed have attracted investments through Post-IPO Equity.

World's First Listed Space Technology Fund

Seraphim Capital has an extensive portfolio of SpaceTech Companies. In June 2021 it announced plans to launch Space Investment Trust. It will provide an opportunity to trade stakes in 19 SpaceTech startups from the company's portfolio.

IPO on the London Stock Exchange

The next step is to launch an initial public offering (IPO) on the London Stock Exchange.

What are SpaceTech companies?

According to Seraphim Capital, the SpaceTech industry includes companies with technology or services that are already addressing, originally derived from, or potentially benefiting the space sector. Particularly, it is about space-based connectivity or precision, navigation, and timing signals. Besides, Seraphim include here electric vertical takeoff and landing (eVTOL) businesses too.

Net asset value total return 20%

Seraphim Space Investment Trust set a target to reach at least 20% annualized return of net asset value (NAV).



Seraphim Capital is the leading enthusiastic company that invests in the SpaceTech industry. It aims to develop and strengthen the companies operating in the space ecosystem.

Get stakes in unicorn companies



\$1 B

quantum encryption technology



\$1.6 B

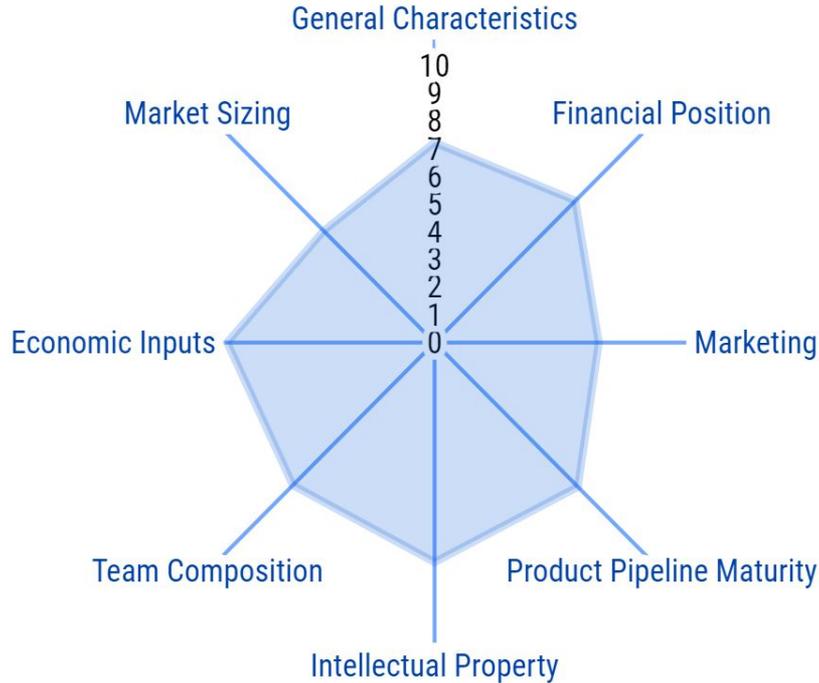
satellite-based data for forecasting



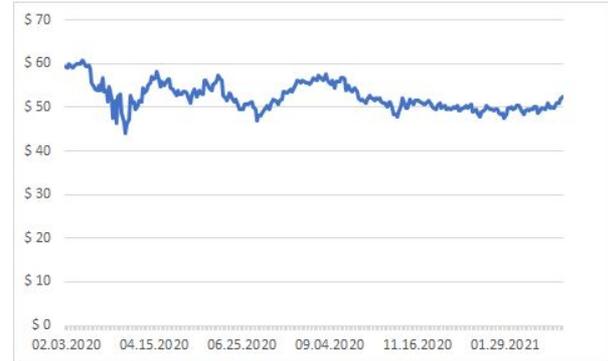
\$1.8 B

space-based broadband cellular network

Northrop Grumman Corporation operates as an aerospace and defense company worldwide. The company operates through four segments: Aeronautics Systems, Defense Systems, Mission Systems, and Space Systems.



Stock price (in B \$)



Ticker	Mean Daily Return	Volatility of Daily Returns	Growth After IPO	Capitalization (B\$)
NOC	-0.01%	2.39%	1179.11%	58.8

Conclusions

The global SpaceTech industry will generate income of \$10T in 2030, up from the current \$4T. In other words, this is a massive opportunity for private-equity investors. The commercial SpaceTech sector is extremely fast-growing, and this dynamic will create a trillion-dollar opportunity for early entrants. Barriers to entry could restrict competition and enhance the value of market leaders. Tendencies in the sector investments are changing, and while the traditional space industry was once dominated by governments, the New Space industry is dominated by private, emerging companies. Thousand of companies are getting fundings in different sectors. The number of companies and sectors reflects the level of SpaceTech integration into everyday life and present opportunities for market expansion, particularly as increasingly more companies go public. While most of the upcoming IPOs are headquartered in the US, companies from other countries (e.g. China) are also emerging.

Some of them are experiencing enormous annual growth; investing in SpaceTech could potentially bring higher profit than S&P 500 or ROKT and ITA stock indexes. Its market capitalization growth is exceeding that of the entire market (represented as the S&P 500 index) and it is less volatile.

Thus, the stakes are becoming high, and investors are increasingly entering the industry. Rapidly evolving, the industry attracts newcomers with its high potential returns along with reasonable risks. New investment instruments (e.g. ETF, SPAC, trusts) appearing, will make those opportunities available to investors of any size.





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