



SERAPHIM  
CAPITAL

Q1 2021

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# Seraphim SpaceTech Venture Capital Index



# Welcome



As was anticipated in last quarter's report, 2021 has seen SpaceTech become one of the hottest markets for the current SPAC merger bonanza.

As at the time of writing, 11 space-related companies have already announced their SPAC mergers. Collectively, these companies are set to attract more than \$7bn of equity funding as and when they complete their planned SPAC mergers.

In the context of 2020 having seen a total of \$7.7bn of private capital invested across the entire SpaceTech industry, the newly developed appetite by public market investors for space companies represents a major paradigm shift for the wider SpaceTech ecosystem.

Whilst it remains unclear how long the current favourable public market conditions will persist, the play book has now been set for emerging category leaders to look to SPACs as a means of accelerating their ability to access the capital required to realise their visions.

Within the private capital markets, Q1 21 was another strong quarter, continuing the positive momentum of recent quarters. With both private and public market investors now committing record levels of investment to space businesses, the sector is now at a major watershed moment. An understanding of – and belief in – the transformative potential of SpaceTech is now becoming accepted within the wider investment community.

This may well provide to be the moment that one of the major impediments to the sector delivering on its \$trillion potential – namely access to risk capital – has inexorably shifted.



**Mark Boggett**  
CEO



**James Bruegger**  
CIO



**Josephine Millward**  
Head of Research



**Lewis Jones**  
Investment Analyst

## Highlights

**\$8.7bn**

invested in last 12 months

**\$2.7bn**

invested in Q1 (\$2.6bn in Q4 20)

**68**

deals closed in Q1 (highest since Q1 18)

**264**

record level of Seraphim Index

**\$850m**

biggest deal closed in Q1 (SpaceX)

**\$46m**

average deal size in Q1 21 (vs. \$50m Q4 20)

**11**

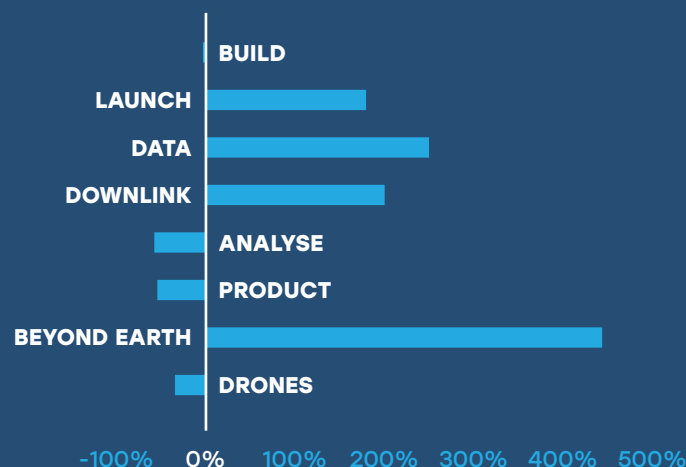
space-related SPAC mergers announced

**\$7.2bn**

funding committed to these SPAC mergers

## COVID-19 Impact:

Year to Q1 21 vs. Q1 20 (% Change)



Investment in the 12 months to Q1 21 was 95% higher than in the preceding 12 months prior to the COVID-19 pandemic hitting. A near doubling in investment levels in the face of a global economic crisis is remarkable. The Launch, Data and Downlink categories all saw more than 150% annual growth, whilst Beyond Earth increased by an astonishing 438%, albeit from a very low base of less than \$50m.

Having so far largely weathered the worst of the impact of the downturn, the New Space economy is now primed for further strong growth in 2021 and beyond.

# Q1 2021 Deals



Q1 2021 saw a modest increase in deal volumes with a total of 68 deals closed versus 62 in Q4 2020. This is the highest level of activity since Q1 18.

Upstream (dark blue) once again accounted for nearly 2/3rds of all deals (65% vs. 63% in the previous quarter).

Early stage transactions (seed through to Series B) continued to dominate, accounting for 85% of all deals.

The Data category – relating to satellite and drone-based platforms collecting and communicating data from above – saw a notable increase in investment activities, with a total of 19 deals closed versus 12 in the previous quarter.

With deals involving early stage satellite constellations driving this growth, investors continue to demonstrate their belief in the long term prospects for these nascent satellite operators.

## Q1 2021 Top Deals

Q1 21 continued in a similar vein to the prior quarter in terms of the number of ‘mega rounds’ of more than \$50m. Once again, smallsat launchers (ABL Space Systems), drones (Skydio, XAG) and flying taxis (Volocopter) all feature in the list of the quarter’s largest deals. However, as with recent quarters, it is satellite constellations

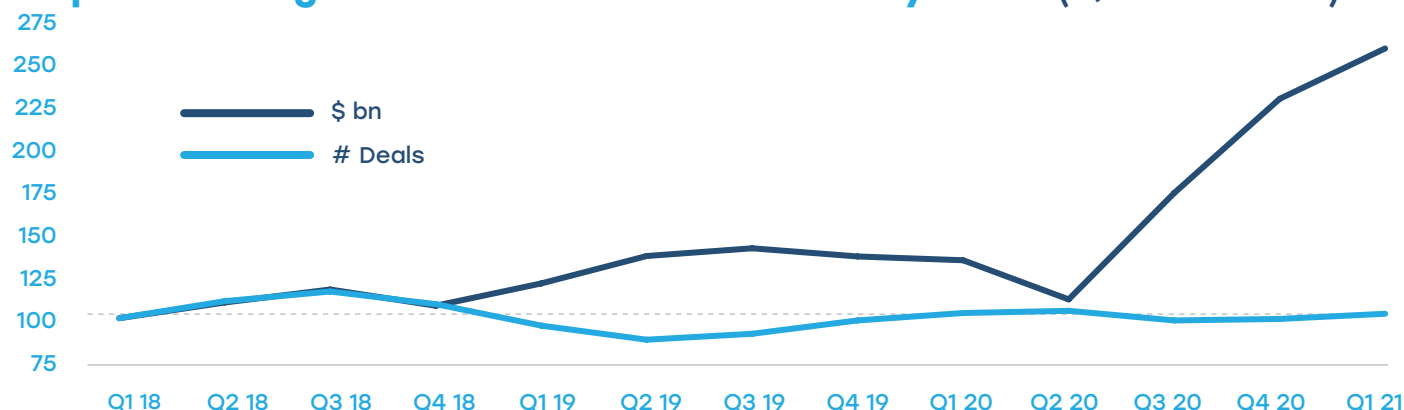
that are the most notable beneficiaries of investor support. Between them, the twin ‘mega constellations’ of SpaceX and OneWeb closed a total of \$1.25 billion. After several quarters notable for having very sizeable funding rounds for Chinese companies, this quarter has seen US businesses re-assert their dominance, accounting for 7 of the 10 largest deals closed.

COMPANY	COUNTRY	DATA LIFECYCLE	SUB CATEGORY	STAGE	AMOUNT
SpaceX	US	Data	Satcoms	Growth	\$850m
OneWeb	UK	Data	Satcoms	Growth	\$400m
Volocopter	Germany	Launch	Flight & Delivery	Series D	\$241m
Skydio	US	Data	Drones & UAVs	Series D	\$170m
ABL Space Systems	US	Launch	Rockets	Series B	\$170m
Axiom Space	US	Beyond Earth	Space Logistics	Series B	\$130m
Tomorrow.io	US	Data	Satellites - Earth Observation	Series D	\$77m
Omnispace	US	Data	Satellites - IoT	Series B	\$61m
Swift Navigation	US	Product	Data Platforms	Series C	\$50m
XAG	China	Data	Drones & UAVs	Series E	\$46m

# Overall Investment Activity



## Seraphim Trailing 12 Months Investment Activity Index (Q1 2018 = 100)



The Seraphim Space Index is a barometer of investment activity, showing the global volume and value of venture capital deals within the Space sector on a 12 month trailing basis, indexed against Q1 2018.

Q1 2021 continued the positive growth trajectory of the last two quarters, with the deal value index increasing another 30 points to hit a new record high of 264 points (up 13% on previous quarter).

Deal volume remain broadly flat, both on the previous quarter and across the index as a whole. This is indicative of the growth in the deal value index continuing to be in large part driven by a fairly small number of large financing rounds for growth stage companies.

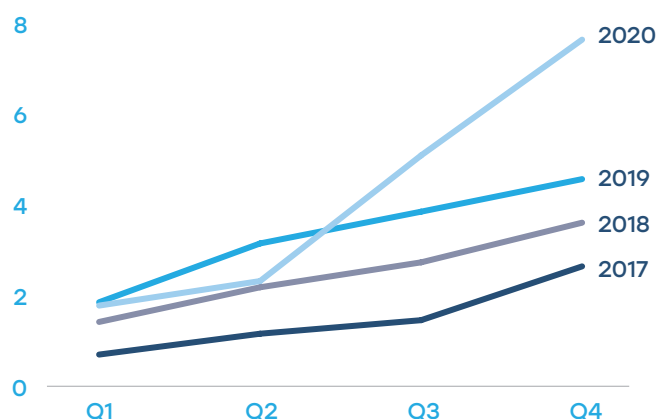
With the Q1 21 index yet to reflect the impact of the slew of pre-IPO funding rounds related to the SPAC mergers announced in recent months, we expect continued strong growth in the index over forthcoming quarters.

## Seraphim Quarterly Investment Tracker (\$bn Invested)



Investment in Q1 2021 was flat relative to the previous quarter, but up 61% on Q1 2020. This now marks the third consecutive quarter where total investment has been above \$2.5bn. Thanks to this, investment levels over the trailing 12 months, breached the \$8bn threshold for the first time.

## Seraphim Annual Investment Tracker (\$bn Invested)



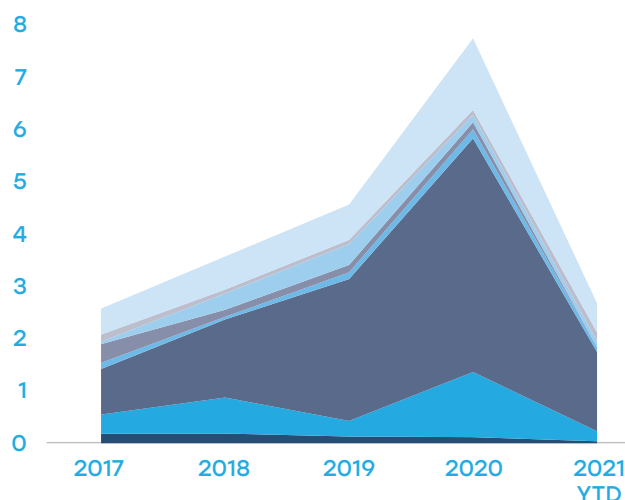
2021 already looks set to be another record year of investment with \$2.7bn closed in Q1 vs. \$1.6bn in Q1 2020. With investment levels in Q2 20 having been adversely affected by the COVID crisis, we expect the first half of 2021 to be more than double that of H1 2020.

# Seraphim Data Lifecycle



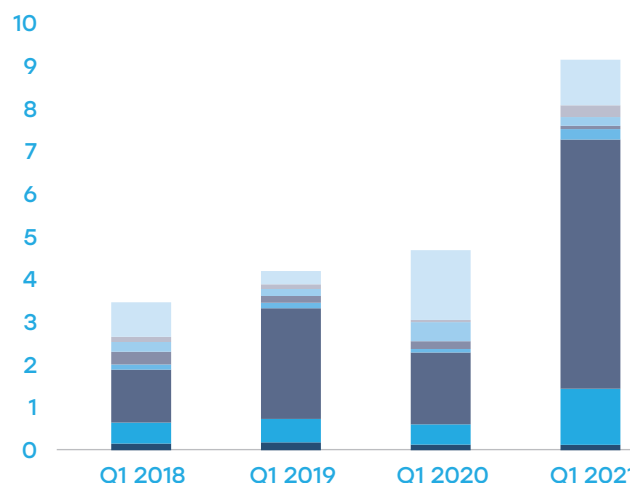
■ Drones    ■ Beyond Earth    ■ Product    ■ Analyse  
■ Downlink    ■ Data    ■ Launch    ■ Build

## Annual Investment (\$bn)



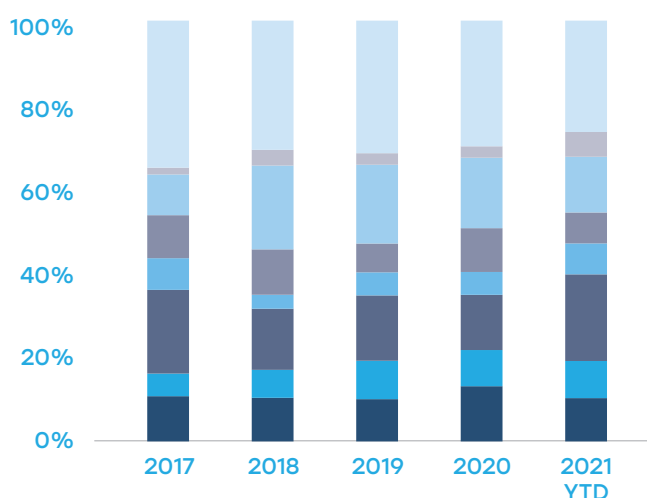
The Data category (which includes constellations) continued to account for more than 50% of total deal value in Q1 21, continuing the trend from H2 20. Elsewhere, the Launch category saw a substantial quarter-on-quarter decline, with the Downlink - and in particular the Drone - categories showing strong growth from the previous quarter.

## Last 12 Months Investment (\$bn)



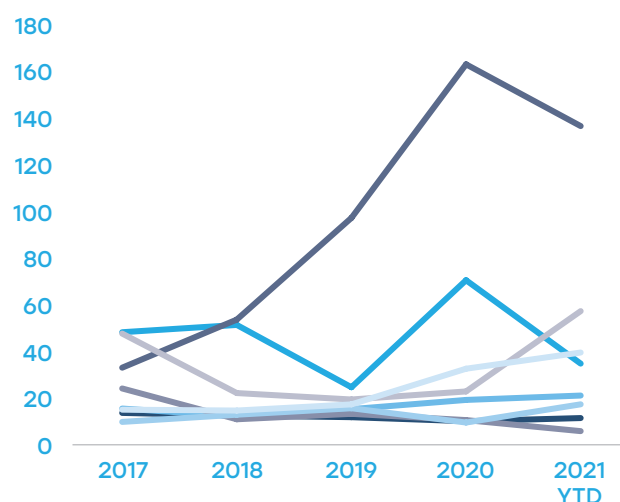
Investment measured over the preceding 12 months was up nearly 100% year-on-year. The Launch, Data, Downlink and Beyond Earth categories all saw more than 100% annual growth. As with the previous quarter, the Analyse and Product categories were the only ones to see notable declines on the previous year, both being down c.50%.

## Number of Deals



The mix of the volume of deals closed in Q1 2021 remained broadly consistent with that seen over the course of the preceding two years, with the Data and Product categories accounting for the greatest number of transactions.

## Average Deal Size (\$m)

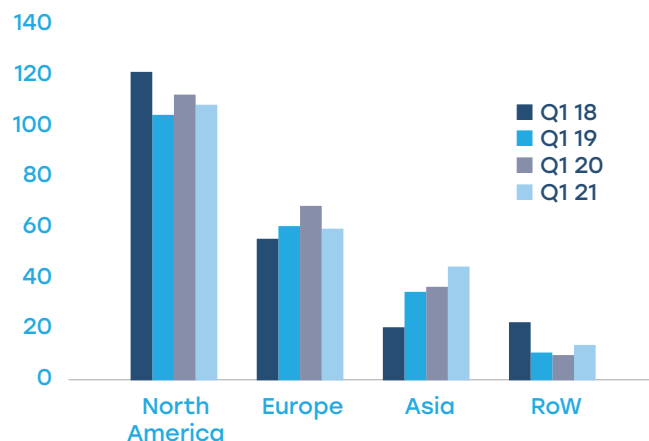


Average deal sizes in the most capital-intensive categories – namely Launch and Data – showed some declines from the 2020 averages. Given these were bolstered by a limited number of very large outlier transactions, we do not read too much into this trend for the time being. In particular, we would expect the Launch category figures to bounce back in subsequent quarters given some of the sizeable transactions that have been announced but are yet to actually close.

# Geographic Analysis

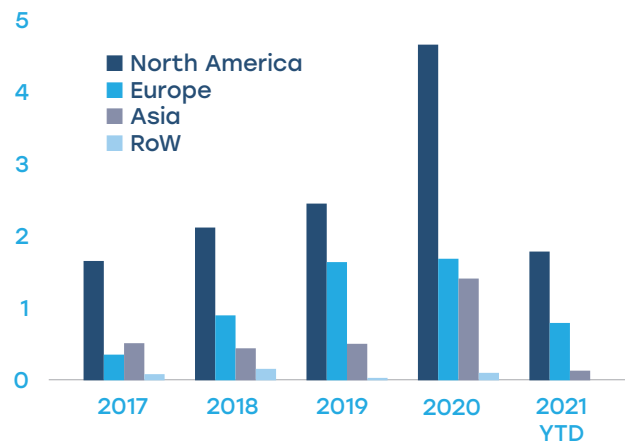


## No. Deals Last 12 Months Investment



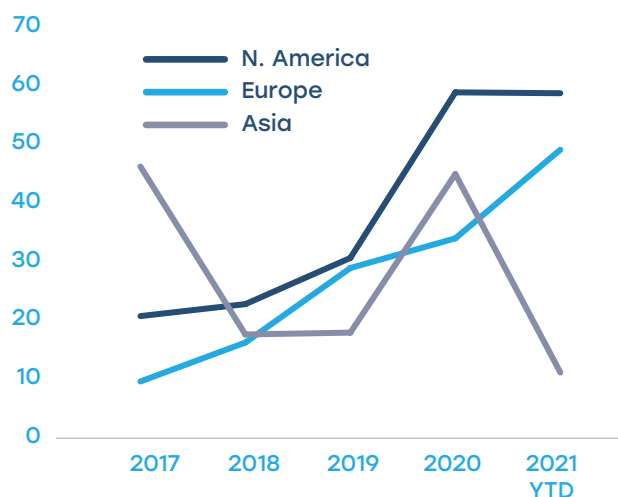
With overall deal volumes having been broadly flat over the last four years, it is little surprise that there has been only limited variation on a regional basis. Deal numbers have been remarkably consistent in North America and Europe in recent years, with only Asia exhibiting consistent modest growth.

## Investment By Region (\$)



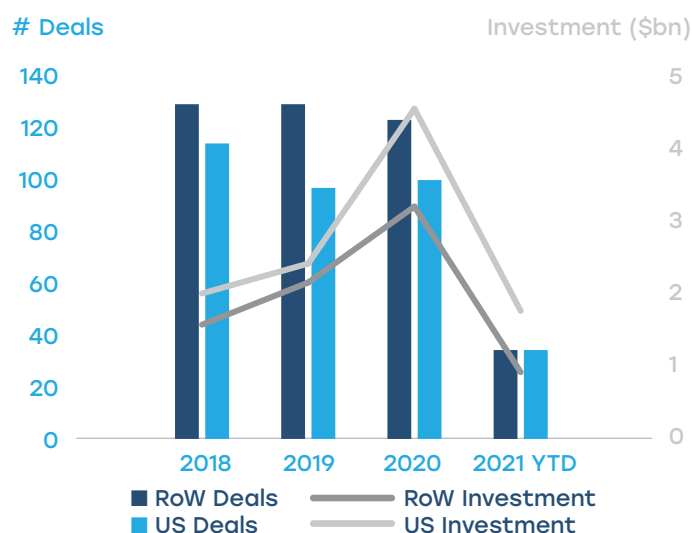
North American continues to dominant in terms of amounts invested, accounting for 66% of total investment in Q1 21. Following two very strong quarters powered by large transactions for Chinese rocket launcher and constellations, Asia dropped back considerably in Q1. We believe this is a temporary blip as we anticipate further very large financing rounds for Chinese companies.

## Average Deal Size By Region (\$m)



Europe continued to close the gap on North America in terms of average deal sizes, albeit this was impacted by outlier transactions such as those for OneWeb. The limited amounts of activity in Asia in Q1 resulted in a steep decline in average deal sizes too. Given we anticipate seeing the return of large Chinese transactions in the near future, we would expect Asia to close the gap on Europe and North America over forthcoming quarters.

## US vs. RoW Investment Activity (LTM)

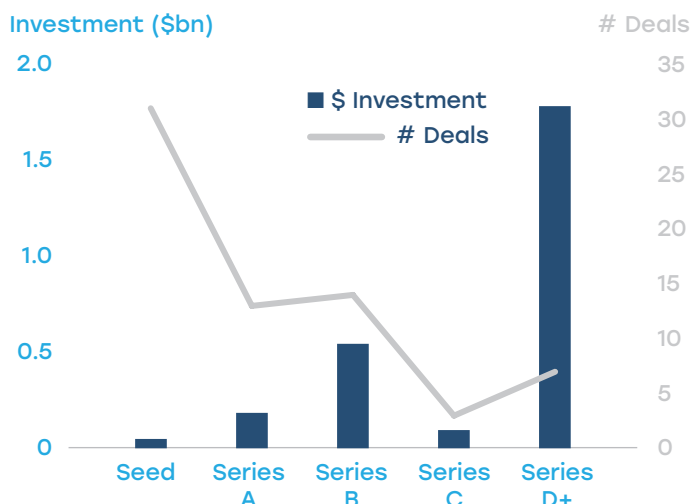


Q1 21 saw an even distribution of deals between the US and RoW, albeit the US continued to account for the lion's share of dollars invested, capturing 66% of total investment during the quarter. The ready availability of risk capital – and in particular growth capital – continues to be a major advantage for US-based start-ups. As a by-product of a funding ecosystem that has matured over multiple decades, we expect this dynamic to persist.

# Investment Stage

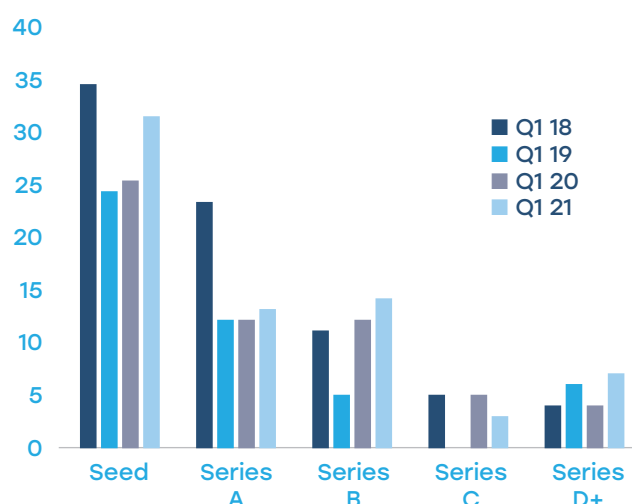


## Deals in Q1 2021



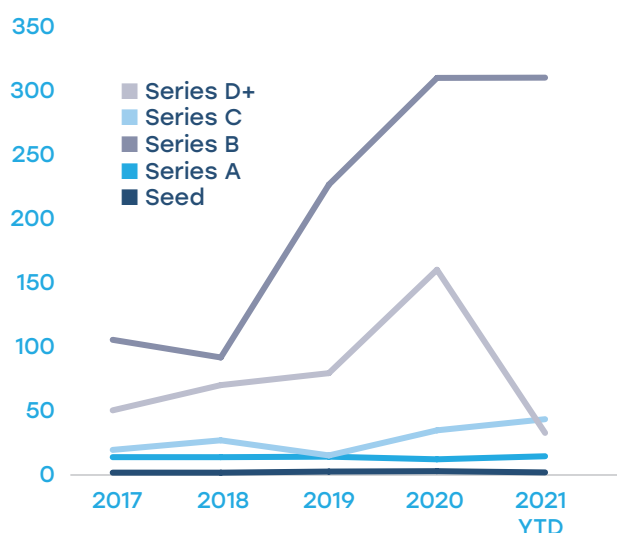
This distribution of deals by stage in Q1 21 was consistent with the previous quarter, with Series B (14 deals vs. 9 in prior quarter) the only notable change. Whereas early stage (seed to B round) deals accounted for c.85% of all deals, later stage (C round and above) accounted for more than 70% of total amounts invested.

## No. Deals YTD (Q1 21)



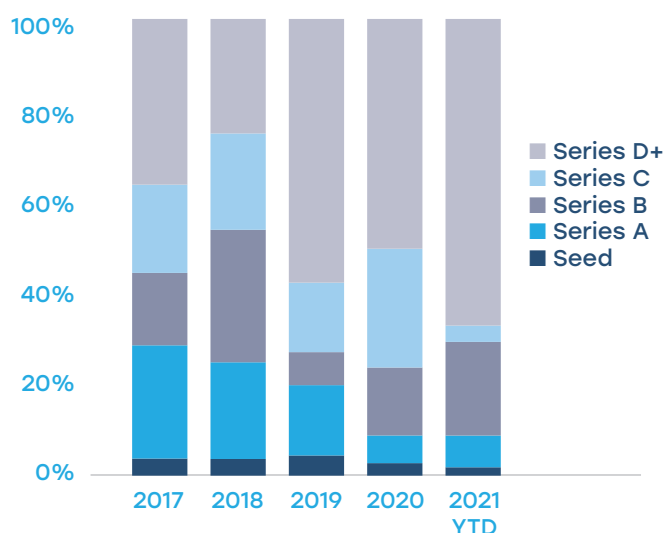
Deal volumes by stage in Q1 21 surpassed those for the equivalent period in 2019 and 2020, but still fell some way short of 2018 levels for Seed and Series A. Seed (31 deals vs. 25 in Q1 20) and Series D+ (7 vs. 4) saw the biggest increases on the prior year.

## Average Deal Size (\$m)



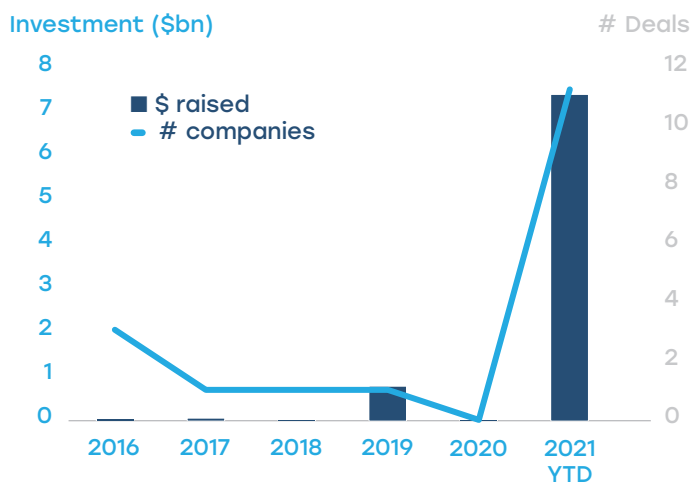
The average size of growth stage rounds (Series D+) closed in Q1 remained consistent with recent quarters. Series C deal sizes dropped very considerably, but with only 3 such deals closing during the period it would be premature to draw any conclusions at this stage. Alongside the growth in B round deals closed, average deal sizes also increased significantly too.

## \$ Invested By Stage (\$bn)



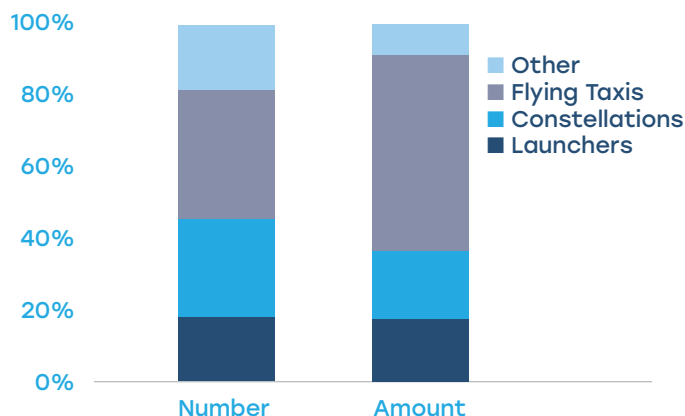
The impact of both SpaceX and OneWeb announcing major new funding rounds during the quarter has been to push the proportion of overall investment deployed into growth stage rounds to new highs. Series D+ funding rounds accounted for more than 2/3rds of total capital invested in the quarter. We expect large funding rounds for category leaders will continue to drive up overall investment levels.

## Public Market SpaceTech Deals



2021 has already seen a marked shift in public market investors' appetite for SpaceTech companies. Prior to 2021, 6 New Space companies had gone public, raising a combined \$0.8bn. Only one of these companies – Virgin Galactic – went public via a SPAC merger. Already in 2021, 11 Space-related businesses have announced SPAC mergers, representing more than \$7bn of investment.

## Investment By Region (\$)



Of the 11 announced Space-related SPACs that are expected to close within the next c.1 quarter, Flying Taxis – which will rely on Space-based connectivity and navigation to operate autonomously – represent the biggest category both in terms of number (4) and investment (\$3.9bn). We anticipate satellite constellation and launcher companies will continue to attract interest from the SPAC market.

## 2021 Announced Space SPAC Deals

US companies dominate the list of announced SPAC-related SPACs. There is a fairly even split between Nasdaq (6) and NYSE (5) listed SPACs. To date, only one of these companies – AST&Science – has completed its SPAC de-merger, with many others aiming to

complete their own transactions by the middle of the year. We expect several more Space businesses to announce further SPAC mergers during the course of the next quarter, alongside the launch of several SPACs focused on the Space sector. This augurs well for continued public market interest in the sector.

ANNOUNCED	COMPANY	REGION	SPAC SPONSOR / EXCHANGE	DATA LIFECYCLE / SUB CATEGORY	AMOUNT	PRO FORMA EV	ESTIMATED CLOSE DATE
Oct 20	Momentus	US	\$SRAC / Nasdaq	Launch / Space Tugs	\$348m	\$1.2bn	Q3 21
Dec 20	AST&Science	US	\$NPA / Nasdaq	Data / Satcoms	\$460m	\$1.4bn	6th April 21
Dec 20	Blade Urban Air Mobility	US	\$EXPC / Nasdaq	Launch / Flight & Delivery	\$400m	\$4.6bn	Q2 21
Feb 21	Astra	US	\$HOL / Nasdaq	Launch / Rockets	\$500m	\$2.1bn	Q2 21
Feb 21	Spire	US	\$NSH / NYSE	Data / Earth Observation	\$475m	\$1.2bn	Q2 21
Feb 21	Archer Aviation	US	\$ACIC / NYSE	Launch / Flight & Delivery	\$1.1bn	\$3.8bn	Q2 21
Feb 21	Joby Aviation	US	\$RTP / NYSE	Launch / Flight & Delivery	\$1.6bn	\$4.6bn	Q2 21
Mar 21	BlackSky	US	\$SFTW / NYSE	Data / Earth Observation	\$450m	\$1.1bn	Q2 21
Mar 21	Rocket Lab	US	\$VACQ / Nasdaq	Launch / Rockets	\$750m	\$4.1bn	Q2 21
Mar 21	Redwire	US	\$GNPK / NYSE	Beyond Earth / Space Infrastructure	\$266m	\$0.62bn	Q3 21
Mar 21	Lilium	Europe	\$QELL / Nasdaq	Launch / Flight & Delivery	\$830m	\$2.4bn	Q3 21



# About Seraphim



## VC Funds + Accelerator + Angel Platform + Research

**Our Model:** Inception to exit support powered by smart capital

Seraphim is the world's leading specialist investor in SpaceTech.

Powered by smart capital from leading Space companies and government agencies, we have a unique model combining investment funds, accelerators, and an angel investor platform.

We use our panoptic view of the SpaceTech ecosystem to provide inception to exit support to the sector's most ambitious and fearless entrepreneurs as they aspire to harness the infinite potential of Space to help push the boundaries of what is currently possible by turning science fiction into science fact.

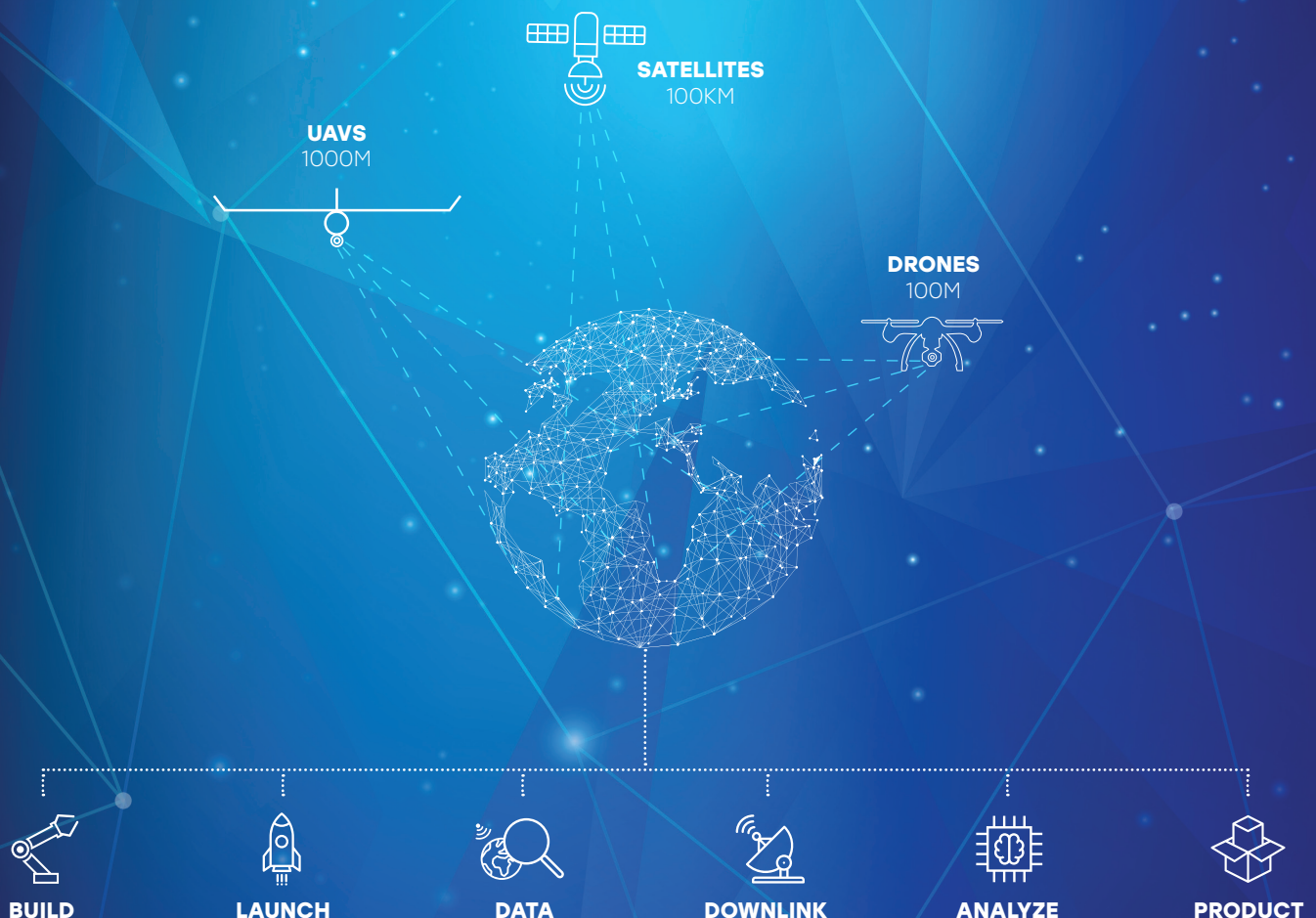
**Our focus:** Businesses collecting & communicating data from above

We are focused exclusively on the multi \$trillion SpaceTech investment market.

We believe SpaceTech is at the nexus of mega-trends that will define societal change over forthcoming decades and has a unique role to play in addressing the world's most pressing problems.

Radical advances in the Space sector mean a data and connectivity tsunami is about to transform the world as we know it, driving the next major paradigm shift in the global economy.

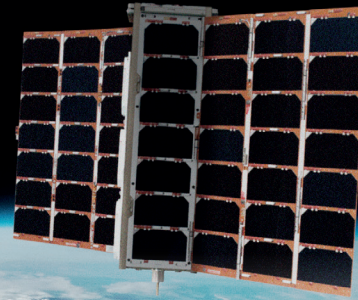
We invest in companies that are enabling, generating and exploiting data being collected and communicated from above.



# Our Portfolio



## Current Portfolio



We are the most prolific investor in SpaceTech globally. Across our different activities, we currently have a portfolio of more than 50 of the world's leading SpaceTech start-ups.

## Fund



## Accelerator



## Seraphim News

[AST & Science lists on Nasdaq](#)

[Spire Global to go public via SPAC merger](#)

[Seraphim releases 2021 SpaceTech Ecosystem Map](#)

[Amazon partners with Seraphim on inaugural AWS Space Accelerator](#)

[Iceye hits \\$50m contract wins, partners with Swiss Re](#)

[Mission #7 of Seraphim Space Camp Accelerator gets underway](#)



# Methodology / Further Research



## Methodology & Taxonomy

We use a wide range of different data sources to compile our investment tracker. This includes proprietary, off-market information from our deal flow and network, deal databases such as Crunchbase, industry news sources such as SpaceNews and TechCrunch, and public announcements from companies themselves. We only include third party capital invested on an arm's length basis and therefore do not include personal investment that the likes of Jeff Bezos may make in their own space initiatives.



### BUILD

- Building & selling satellites, drones, autonomous systems. Components, sub-systems, complete systems
- Hardware (sensors), software (i.e. control system), hybrid (i.e. machine vision)



### LAUNCH

- Building & launching rockets
- Launch-related services
- Deliver (i.e. air taxis, drone delivery)



### DATA

- Any data collection / space platform (i.e. smallsat, drone, HAPs)
- Multi-modal: look, listen, communicate



### DOWNLINK

- Facilitate transmission of data from space / aerial platform back down to earth
- Satcoms & terrestrial comms networks
- Data storage, processing, security



### ANALYZE

- Analysis of data from space / aerial platforms
- A.I / machine learning enabled analytics

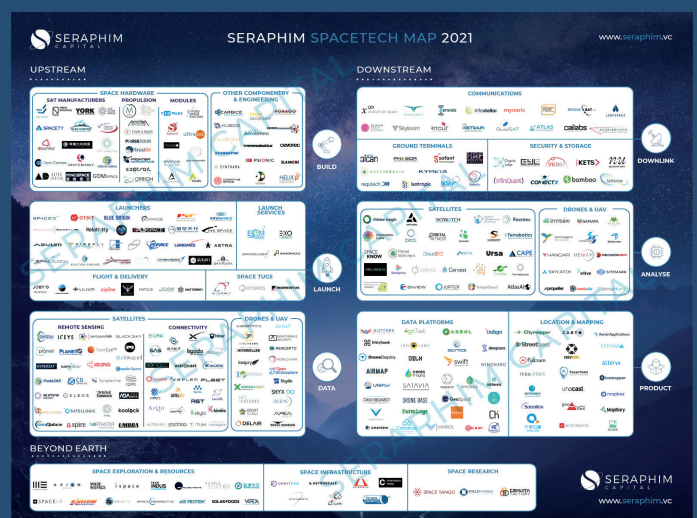


### PRODUCT

- Packaging of different data streams (space & non space)
- Tailored to specific use cases in specific verticals
- Location, monitoring, insight, mapping

## Further Research

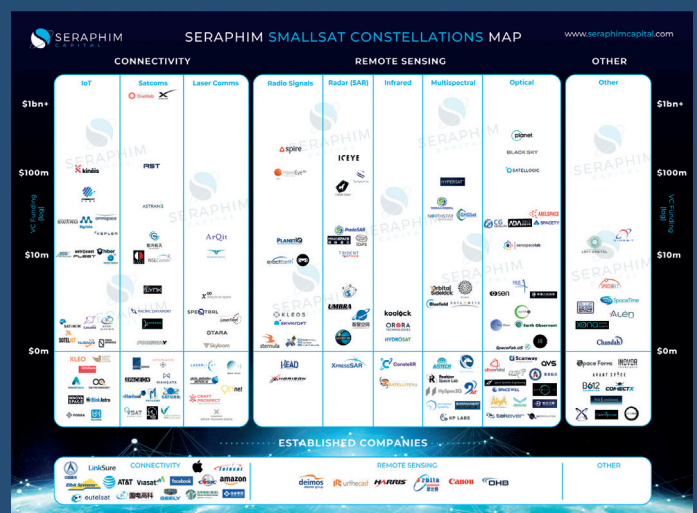
We routinely publish our own research and insights on our website with a view to helping other investors share our excitement for the multi-decade transformational potential of Spacetechnology. Key periodic research we publish includes our widely recognised SpaceTech Ecosystem and Smallsat Constellation market maps.



## SPACE TECH MAP

Global VC backed emerging leaders per category

[DOWNLOAD](#)



## SMALLSAT CONSTELLATION MAP

Global VC backed companies across categories

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