



SERAPHIM
CAPITAL

Q4
2020

Seraphim SpaceTech
Venture Capital Index

Welcome



Q4 was a landmark quarter in what has turned out to be a landmark year for the SpaceTech investment market.

From the COVID-induced gloom of the first half of 2020 where many (including us) were concerned that the macro-economic headwinds might precipitate a 'flight from risk' from many investors, 2020 ended with the funding environment for SpaceTech companies having never looked so healthy.

2020 saw an incredible 70% increase in overall investment levels to hit a record-breaking \$7.7bn. Recognising Space's credentials as a huge, long-term growth market, investors doubled-down on the emerging category leaders, with SpaceX very much to the fore.

Alongside private investor's unprecedented appetite for Spacetechnology, Q4 also saw public market investors recognising the sector's potential.

With two special purpose acquisition companies (SPACs) announcing during the quarter that they had struck deals to merge with two Spacetechnology companies (Momentus, and Seraphim portfolio company AST & Science), 2021 is already shaping up to be yet another record year for Spacetechnology investment.

We anticipate many more companies over the forthcoming year will look to use SPACs as a means of attracting large capital raises and expediting their pathway to becoming public companies.

This is an exciting moment for the SpaceTech ecosystem, and we look forward to reporting on yet more positive developments next quarter.



Mark Boggett
CEO



James Bruegger
CIO



Josephine Millward
Head of Research

Highlights

\$2.6bn

invested in Q4 (\$2.8bn in Q3)

62

deals closed vested in Q4 (vs. 48 in Q3)

233

record level of Seraphim Index

\$850m

biggest deal closed in Q4 (OneWeb)

\$7.7bn

record invested in 2020

70%

growth in investment in 2020

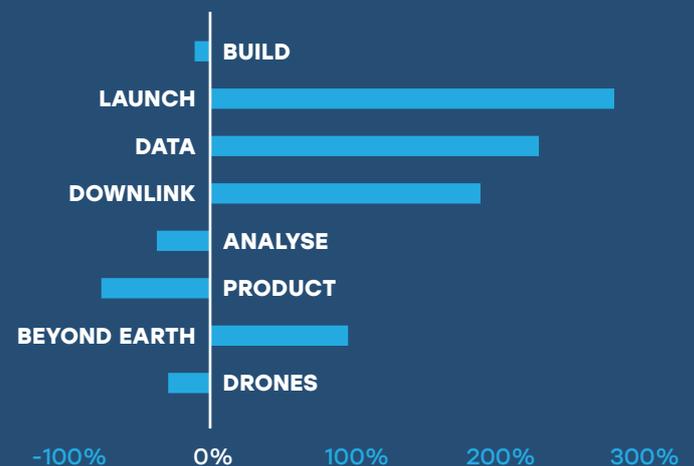
221

deals closed in 2020 (vs. 219 2019)

\$45m

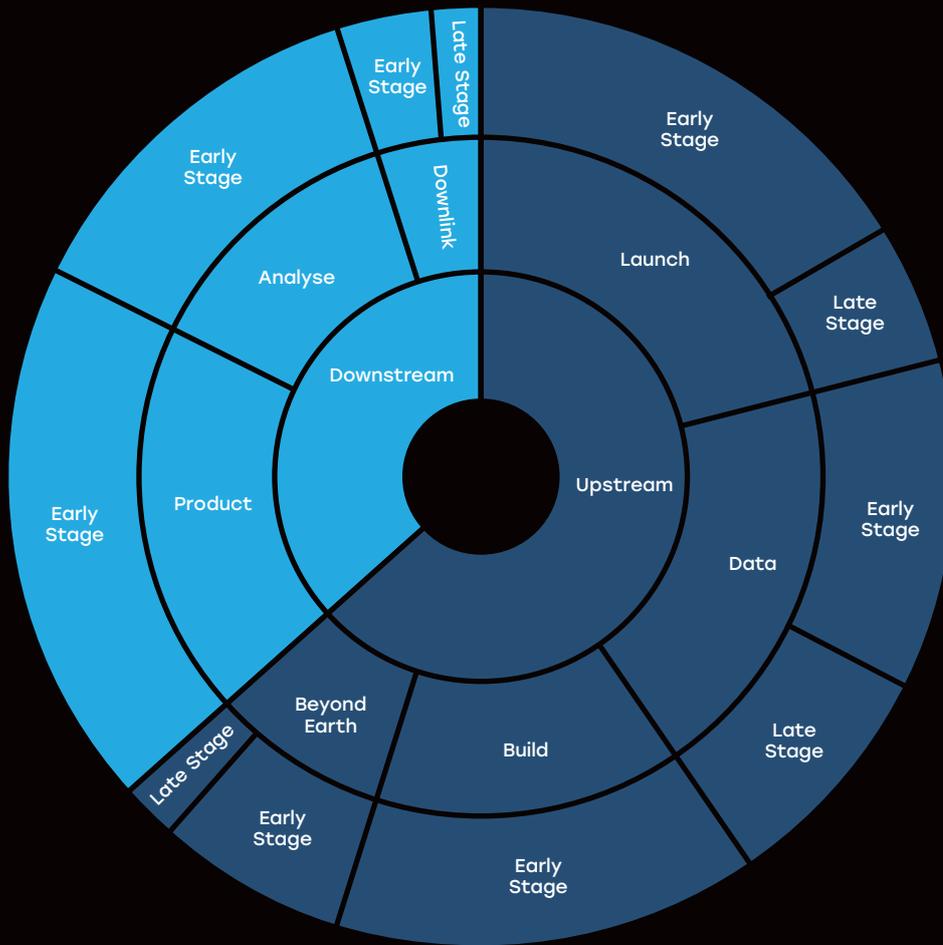
average deal size in 2020 (vs. \$27m 2019)

COVID-19 Impact: Q2-Q4 2019 vs 2020 (% Change)



The sector's resilience to the impact of COVID-19 on the wider macro-economic environment was reinforced in Q4 20. Comparing the last three quarters of 2020 since COVID-19 hit with the same period in 2019 shows overall investment levels up a remarkable 115%. Upstream categories relating to Space-based infrastructure all exhibit very strong growth trajectories; rockets (Launch), satellites (Data) and Space exploration/exploitation (Beyond Earth) each grew between 100-300%.

Q4 2020 Deals



Q4 2020 Deals Activity (# Deals)

Q4 2020 saw a significant increase in deal volumes with a total of 62 deals closed versus 48 in Q3 2020.

Upstream (dark blue) accounted for 63% of deal volumes, up from 53% in the previous quarter.

Early stage transactions (seed through to Series B) continued to account for more than 80% of all deals.

The increase in quarterly deal volumes was fairly evenly distributed between the Build, Launch, Beyond Earth (upstream) and Product (downstream) categories.

Q4 2020 Top Deals

Building on the positive momentum from the previous quarter, Q4 2020 had another slew of 'mega rounds' of more than \$50m. The quarter was marked by Bharti and the UK Government injecting \$850m into OneWeb, two rocket companies (Relativity, Isar Aerospace) raising big rounds, and two Chinese satellite

constellations (Chang Guang, Galaxy Space) raising multi \$hundred million rounds. The later builds on two equivalent rounds for Chinese rocket companies in Q3, which taken together are a strong indication of China's quest to challenge the West for dominance in the New Space ecosystem.

COMPANY	COUNTRY	DATA LIFECYCLE	SUB CATEGORY	STAGE	AMOUNT
OneWeb	UK	Data	Satcoms	Growth	\$850m
Relativity Space	US	Launch	Rockets	Series D	\$500m
Chang Guang	China	Data	Earth Observation	Series C	\$376m
GalaxySpace	China	Data	Earth Observation	Series C	\$300m
Isar Aerospace	Germany	Launch	Rockets	Series B	\$91m
Joby Aviation	US	Launch	Flight & Delivery	Growth	\$75m
Astroscale	Japan	Beyond Earth	Space Infrastructure	Series E	\$51m
Percepto	Israel	Data	Drones	Series B	\$45m
Astranis	US	Data	Satcoms	Series C	\$42m
Kymeta	US	Downlink	Ground Terminals	Growth	\$30m

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.

(+33% on previous quarter). Once again, it has been a handful of ‘mega deals’ that have continued to drive up deal values, whilst deal volumes remain steady.

Q3 2020 saw a notable divergence within the index between deal volumes (largely flat) and deal values (up 40 points in the quarter). This trend has continued apace in Q4 2020, with the deal value index breaching the 200 point mark for the first time to reach a record 233

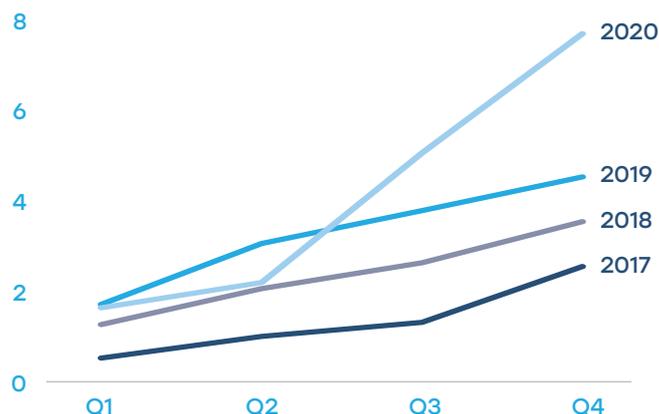
We expect this trend to continue over forthcoming quarters, powered in part by several sizeable pre-IPO funding rounds (AST&Science, Momentus) announced in Q4 2020 but which will close in Q1 2021.

Seraphim Quarterly Investment Tracker (\$bn Invested)



Investment in Q4 2020 was slightly down on Q3’s record-breaking levels, with a total of \$2.63bn invested vs. \$2.85bn in Q3. It should however be noted that even at this level, Q4 still represented the second highest quarter ever.

Seraphim Annual Investment Tracker (\$bn Invested)



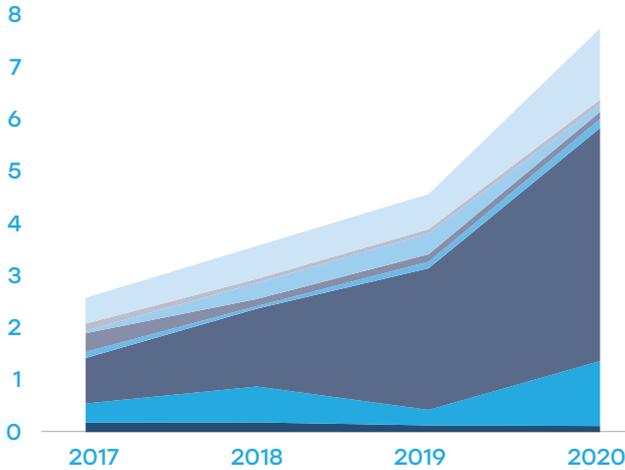
Q4 2020 closed out yet another record year for investing in SpaceTech. Having surpassed 2019’s total by Q3, 2020 ended with \$7.7bn of total investment, 70% up year-on-year. We expect 2021 to shape up to be yet another record year, albeit this will likely be driven in part by public markets given \$1.34bn of investment in Space-related SPAC transactions has already been announced.

Seraphim Data Lifecycle



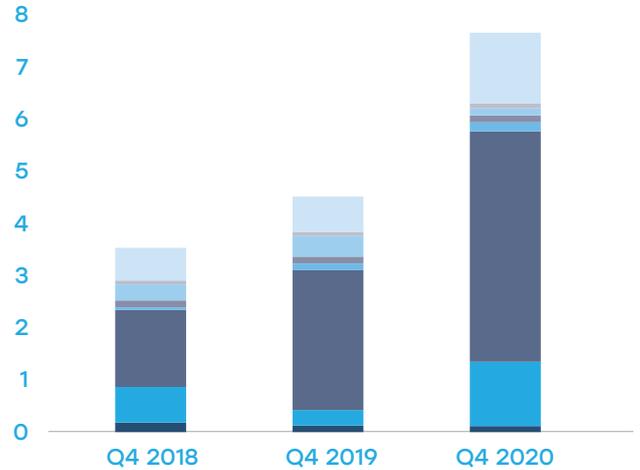
- Drones
- Beyond Earth
- Product
- Analyse
- Downlink
- Data
- Launch
- Build

Annual Investment (\$bn)



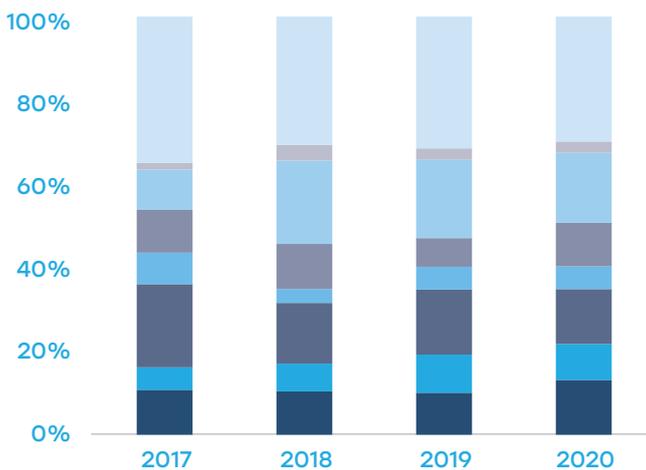
With the 'mega deals' that have powered record investment levels having been dominated by rocket launchers and smallsat constellations, it is no surprise that taken together, the Launch and Data category (which includes constellations) accounted for 85% of the growth in 2020. As the more capital-intensive, infrastructure-like elements of the ecosystem, we would expect this trend to continue in 2021.

Last 12 Months Investment (\$bn)



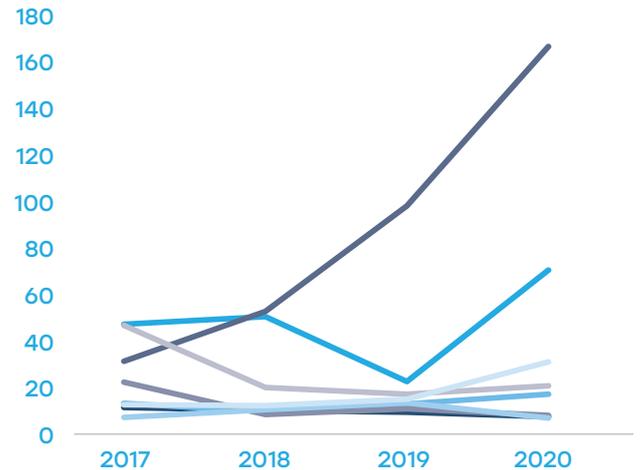
Most categories saw double digit year-on-year growth in 2020. Launch (up 76%) and Data (up 39%) had the biggest gains thanks to the impact of 'mega deals'. Downstream investment levels were more muted, with the Analyse and Product categories respectively flat and down substantially. As new datasets from the constellations start to come online, we would expect to start to see an uptick in downstream investment levels.

Number of Deals



The number of deals closed in 2020 (221) was consistent with 2019 (219). There was however substantial growth in deal volumes in several categories. Analyse was up 53% to 23 companies, and Build up 32% to 29 companies. We believe the former is a positive lead indicator for the exploitation of Space data, and the latter a sign of the continued innovation that is driving new capabilities for satellites and drones alike.

Average Deal Size (\$m)

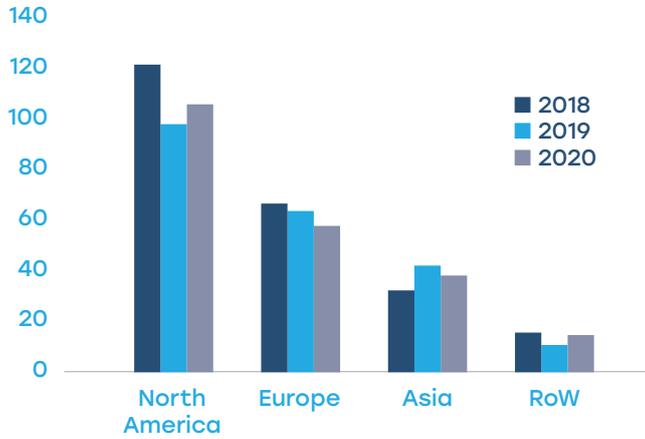


A combination in capital intensity and large investment rounds into the maturing category leaders has seen average deal sizes in Launch and Data grow very significantly during 2020. Average deal size in Data was \$164m, skewed by the SpaceX and OneWeb capital raises. Recent growth in average transaction size in Launch (\$69m) has been driven by a broader array of companies raising growth rounds.

Geographic Analysis

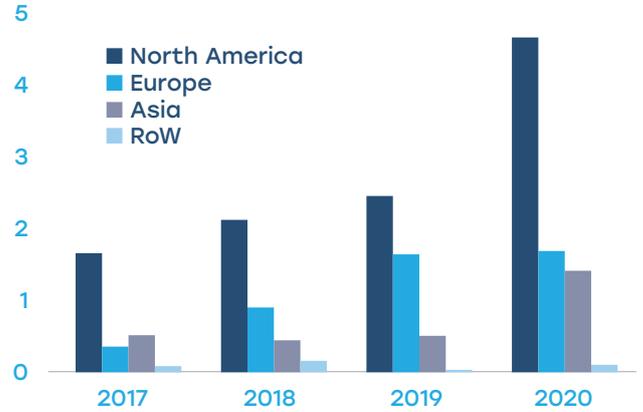


No. Deals Last 12 Months Investment



Given overall deal volumes were flat in 2020, it is no surprise that at a regional level there was likewise no material changes. A modest increase in North American deals was offset by commensurate slight decreases in Asia and Europe. The UK continued to be the primary market in Europe, accounting for 42% of all European deals, as it had done in 2019. RoW grew 36% in the year, albeit from a low base.

Investment By Region (\$)



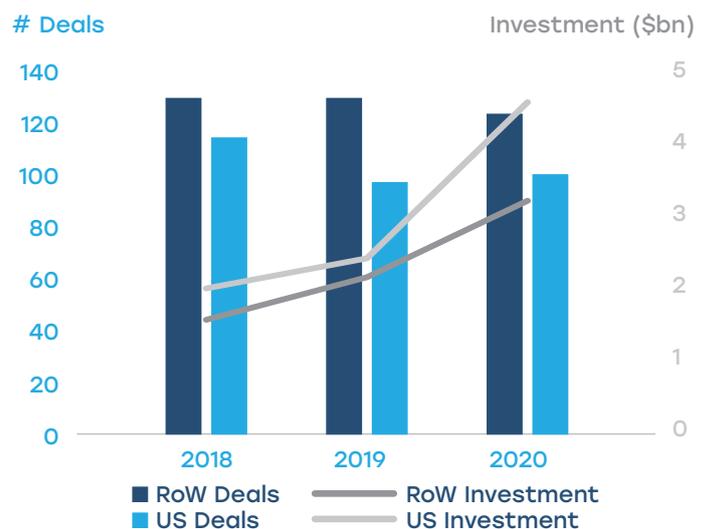
North American remained the dominant region in 2020 in terms of investment amounts. Powered by SpaceX's fundraising exploits, investment grew by 90% in 2020 to \$4.6bn. Notwithstanding OneWeb's own huge funding round closed in Q4, overall investment levels in Europe were flat in 2020 (\$1.6bn, up 3% y.o.y). Investment in Asia grew by more than 175% to \$1.4bn, due almost entirely to a handful of very large financing rounds closed by Chinese companies in the second half of the year.

Average Deal Size By Region (\$m)



The surge in 'mega deals' in 2020 drove up average deal sizes across all three key regions. North America increased 92%, Europe 18% and Asia 152%. Average deal sizes in Asia have now surpassed those within Europe. With Europe lagging behind North American and Asia in terms of companies that have been raising very large rounds, we would expect this gap to continue to grow in 2021.

US vs. RoW Investment Activity (LTM)

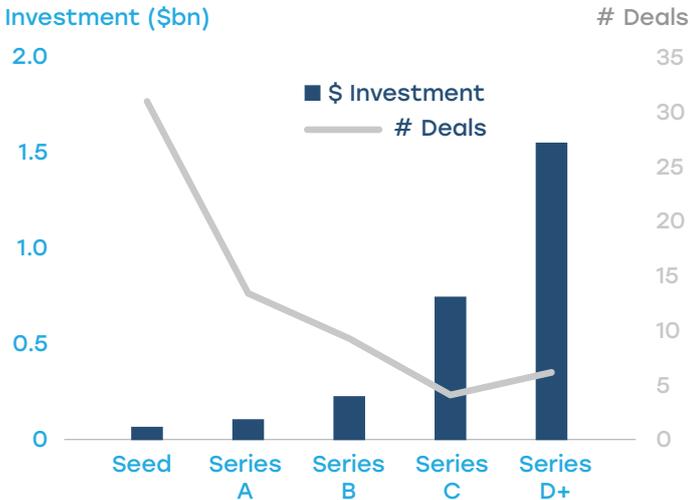


Both the number and proportion of US vs. RoW investments in 2020 were broadly flat on 2019's figures. Whilst RoW continues to account for c.55% of deals done, the US was very much in the ascendency in 2020 in terms of dollars invested. Thanks largely to SpaceX, US investment increased 88% in 2020, compared to 49% in the RoW, resulting in the US accounting for 59% of all capital invested (up from 47% in 2019).

Investment Stage

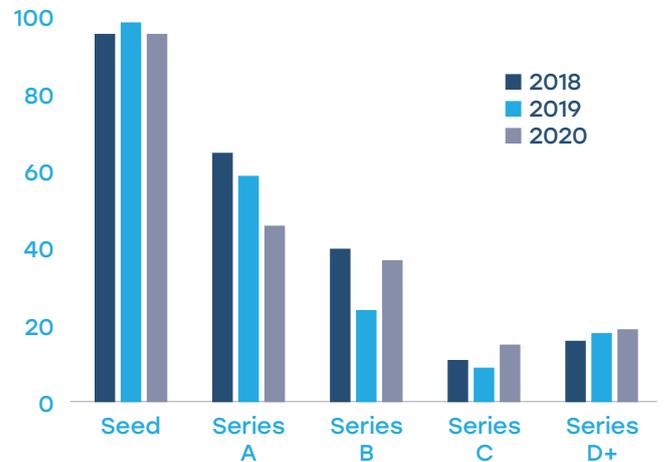


Deals in Q4 2020



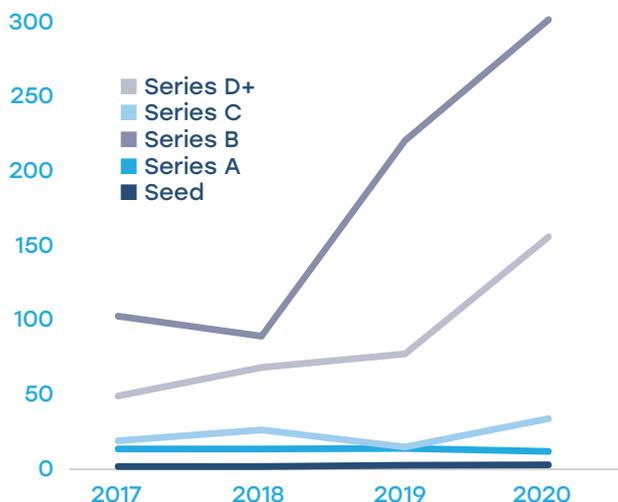
Q4 saw a substantial increase (+48%) over the previous quarter in the number of Seed and Series A deals closed. This is hopefully a sign that investors have rediscovered their appetite for earlier stage risk. The distribution of amounts invested was broadly consistent with the previous quarter, with growth stage deals account for c.3/4 of all investment.

No. Deals Last 12 Months



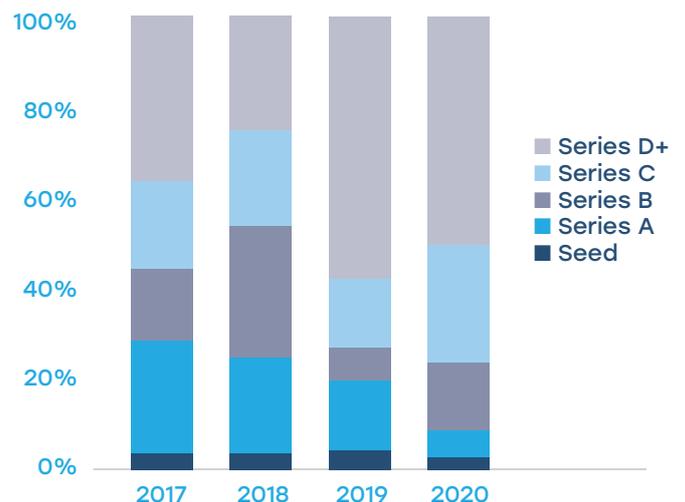
2020 saw a marked trend of growth in later stage deals. Series B and C deals both grew by more than 50% year-on-year. We believe this is a good indicator of a maturing ecosystem. Series A deals declined by 22% in 2020 which we would attribute to COVID; investors have either been writing small cheques into seed companies, or making big commitments to later stage companies.

Average Deal Size (\$m)



Coupled to the growth in the number of later stage deals being closed, the average size of these deals also increased significantly. Series B and C average deal sizes both grew by more than 100% in 2020, with Series D+ also growing by nearly 40%. Contrastingly, Seed and Series A average deals sizes were little changed on 2019.

\$ Invested By Stage (\$bn)



Fuelled by the growth in both the volume and size of Series C and Series D+ stage transactions, growth stage deals accounted for more than 75% of the value of all investments in 2020. This continued the trend of 2019 which also saw a marked increase in growth stage investing which had previously accounted for c.50% of all deal value.

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.

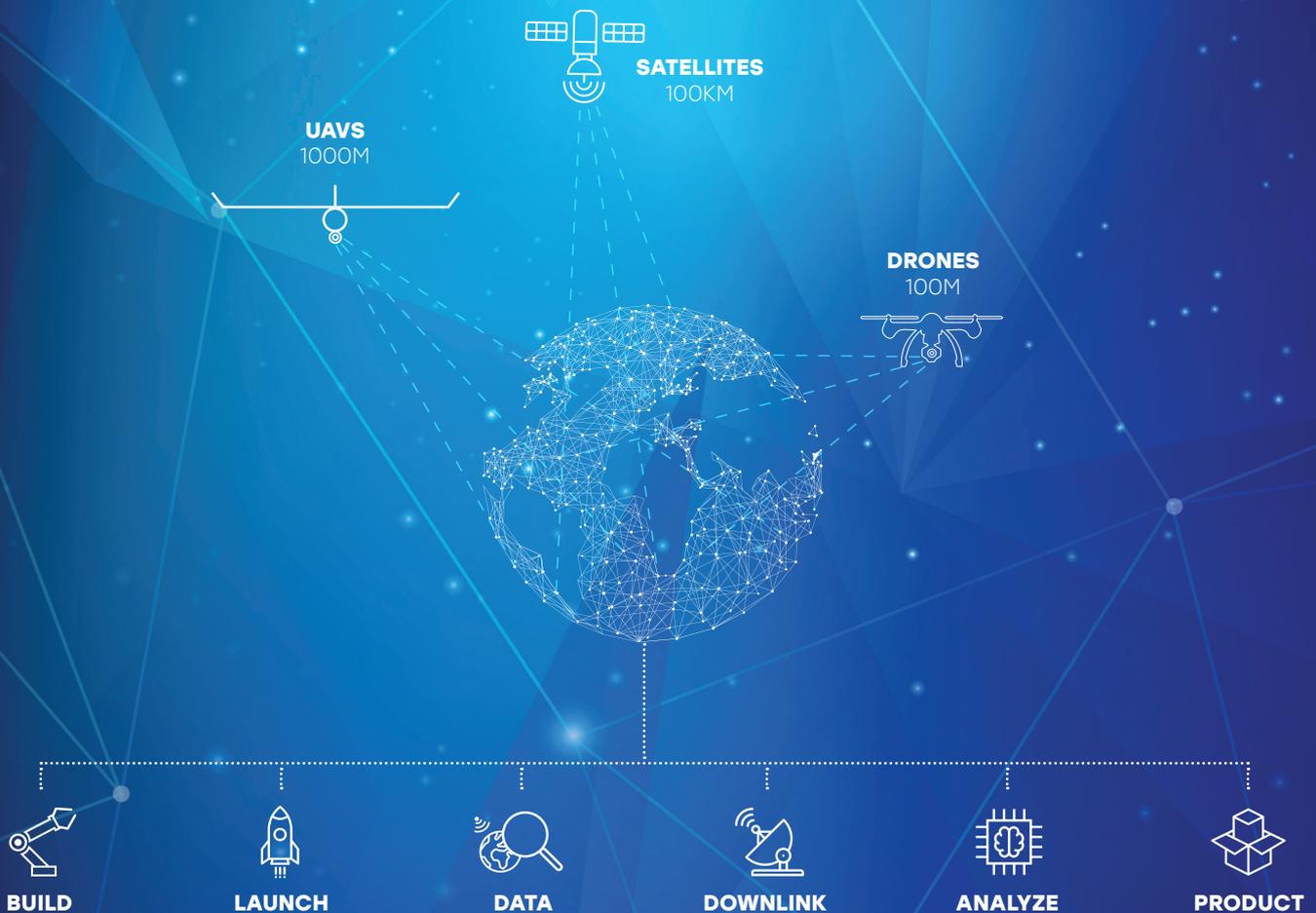
Our focus: Businesses collecting & communicating data from above

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

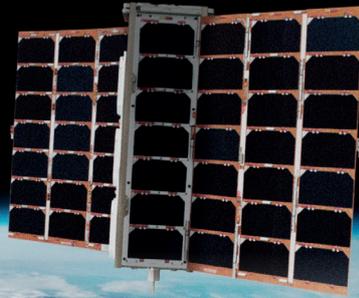
We believe SpaceTech is at the nexus of mega-trends that will define societal change over forthcoming decades and has a unique role to play in addressing the world's most pressing problems.

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



Portfolio News

[Seraphim Portfolio Companies At Heart Of SpaceX's Record Breaking Launch](#)

[AST & Science to go public via SPAC merger](#)

[D-Orbit makes history with inaugural 'Space-Taxi' mission](#)

[Altitude Angel launches world's first 'sky corridor' for autonomous drones](#)

[Iceye announces record \\$87m Series C funding round](#)

[LeoLabs partners with SpaceX to track Starlink satellite deployments](#)

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, 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

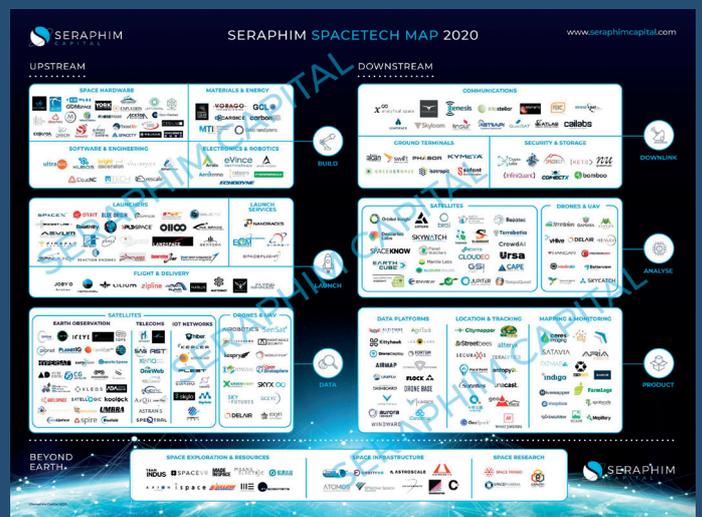


PRODUCT

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

Further Research

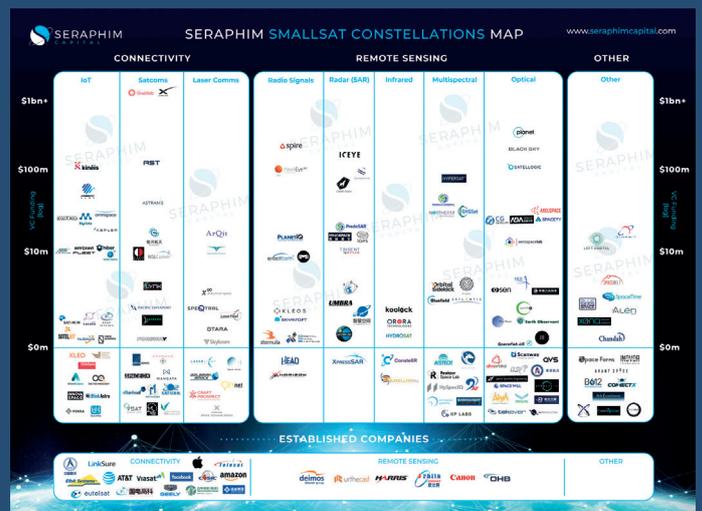
We routinely publish our own research and insights on our website with a view to helping other investors share our excitement for the multi-decade transformational potential of Spacetech. Key periodic research we publish includes our widely recognised SpaceTech Ecosystem and Smallsat Constellation market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



SPACE TECH MAP

Global VC backed emerging leaders per category

[DOWNLOAD](#)



SMALLSAT CONSTELLATION MAP

Every company planning a smallsat constellation

[DOWNLOAD](#)



www.seraphim.vc/research