

QUARTERLY REVIEW OF GLOBAL PRIVATE INVESTMENT

GENERATION SPACE INDEX

Q3 2024



GENERATION
SPACE

EXECUTIVE SUMMARY

The SpaceTech sector continues to demonstrate positive momentum, evidenced by five consecutive quarters of growth in investment on a trailing twelve month (TTM) basis. TTM investment reached \$8.8bn as of Q3 '24, up from \$8.5bn in the TTM to Q2 '24. Likewise, the volume of deals completed has seen steady growth for four consecutive quarters, resulting in a record number of 595 SpaceTech deals completed in the TTM period.

Q3 witnessed a heavy concentration of capital flowing into capex-intensive businesses, particularly in the rocket launcher and satellite operator and manufacturer segments. Nine of the top ten deals were focused on these areas. However, the largest deal of the quarter stood out, as spatial intelligence startup World Labs emerged from stealth with a \$230 million round. The business is supported by syndicate of top-tier investors and led by Fei-Fei Li, a top AI researcher.

Investment in China have remained strong in Q3, with a continued focus on satellites and rockets. This quarter, China was responsible for three of the top ten deals. Throughout 2024, China and the US have alternated as leaders in quarterly SpaceTech investment. While China led during the first half of 2024, the US now leads on a year-to-date basis.

In one of the standout venture deals of Q3 '24, Anduril raised \$1.5 billion at a \$14 billion valuation. This next-generation defense contractor is expanding its space capabilities following its acquisition of Adranos in 2023. Anduril recently secured a \$25 million contract to develop a space surveillance network and plans to design, build, and operate its own satellite systems by the end of 2025. However, for the purposes of this report, we have excluded Anduril's round, as the majority funding from this round will likely to be allocated toward manufacturing capabilities for their terrestrial and maritime systems.

The quarter also witnessed saw mixed performance in the public markets. Whereas AST SpaceMobile saw its value surge to more than \$7bn following the launch of its first batch of commercial, direct-to-cell satellites, Terran Orbit agreed a greatly reduced deal to be acquired by Lockheed Martin, and Astra completed its delisting and take-private transaction.

We look forward to seeing how these key trends shape investor decision-making in the year ahead.

KEY HIGHLIGHTS FROM THE QUARTER

\$8.8BN

invested in the **Trailing Twelve Months (TTM) to Q3 24**
(\$5.6bn in TTM to Q3 23)

\$1.9BN

invested in **Q3 24** (\$2.4bn in Q2 24)

595

deals in **TTM to Q3 24** (386 in TTM to Q3 23)

149

deals in **Q3 24** (174 in Q2 24)

\$230M

biggest deal closed in **Q3 24** (World Labs)

\$18M

average deal size in **Q3 24** (\$18m in Q2 24)

\$3.9M

median deal size in **Q3 24** (\$5m Q2 24)

Lockheed's acquisition of Terran Orbital: Months after withdrawing its initial offer, Lockheed Martin re-entered negotiations and announced plans to acquire Terran Orbital for \$450 million, a reduction of approximately \$150 million from the original proposal. This acquisition secures Terran Orbital's financial future, allowing the company to avoid a cash shortage and continue the production of its satellites. Lockheed Martin has a significant interest in Terran Orbital's success, as it is a key supplier. By bringing Terran Orbital's small satellite manufacturing capabilities in-house, Lockheed Martin follows a similar strategy adopted by other defence contractors, as with RTX's acquisition of Blue Canyon Technologies and Boeing's purchase of Millennium Space Systems.

Starship flight 5 delay: SpaceX's Starship Flight 5 has been delayed until late November, leading to escalating tensions between the company and the FAA. The FAA cites safety concerns and compliance issues as the primary reasons for the postponement, while SpaceX disputes these claims, arguing that the delays stem from unnecessary environmental reviews and misrepresentations of their compliance policies. The two-month delay has intensified the conflict, with SpaceX accusing the FAA of stifling innovation, while the agency insists on the importance of maintaining strict safety standards. The goal of flight 5 is to recover Starship's booster at Starbase using the mechanical arms of the launch tower, highlighting a key demonstration of the rocket's reusability. SpaceX expected to have at least six test flights of the Starship this year, but this delay makes it increasingly,

AST SpaceMobile launch: Direct to cell connectivity continues to make strides as AST SpaceMobile successfully launched its first five production satellites into orbit aboard SpaceX's Falcon 9. The satellites will now undergo commissioning and transmission testing with Verizon and AT&T. By 2030, the

company plans to launch 155 satellites with the aim of providing continuous global coverage. The leadup to the launch saw significant volatility in AST's share price. It reached heights of nearly \$40 pre-launch in August, and currently sits at \$26.15 at close of Q3 '24.

Astra take private: After more than three years as a public company, Astra has delisted from Nasdaq following a take-private transaction led by its co-founders. The decision came after the company faced multiple mission failures, significant cash flow problems, and a low stock price, which resulted in two deficiency notices from Nasdaq. Astra originally went public to offer frequent, low-cost launches of small satellites using its Rocket 3 vehicle. However, after achieving only two successful orbital launches out of seven attempts, the Rocket 3 was retired following a major failure during a 2022 NASA mission.

Polaris Dawn mission: SpaceX completed this high-profile commercial space mission, marking the first private spacewalk, alongside numerous other firsts including the highest dragon capsule flight, the first human flight de-pressurization of the dragon capsule, and the highest human earth orbit since the Apollo program. The mission was led by fintech billionaire Jared Isaacman, who previously flew on Inspiration4 – the world's first all civilian mission to orbit.

Starliner Returns to Earth Empty: Boeing's Starliner returned to Earth empty after a nearly three-month delay due to thruster failures and helium leaks. Originally intended to bring two astronauts back, NASA decided to return the capsule empty and use SpaceX instead. These delays and technical issues have raised concerns about Boeing's future in NASA's Commercial Crew Program, after incurring \$1.5 billion in losses.

INVESTMENT OVERVIEW

Seraphim Quarterly Investment Tracker (\$bn Invested)



TTM investment continues to show positive momentum, as the fifth consecutive quarter of investment growth.

However quarterly investment experienced a retraction in Q3 '24, from \$2.4bn in the previous quarter to \$1.9bn.

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



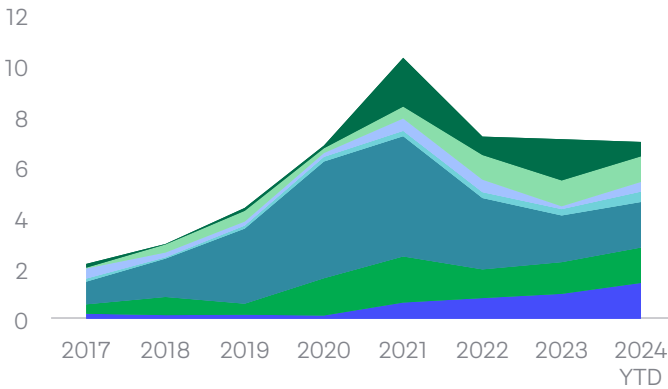
The Seraphim Space Index is a barometer of investment activity, showing the global volume and value of venture capital deals within the Space sector on a 12-month trailing basis, indexed against Q1 '18.

SpaceTech continues to significantly outperform general VC investment, which has remained muted following the pullback in light of economic uncertainty through 2022.

DATA LIFECYCLE

■ Beyond Earth
 ■ Product
 ■ Analyse
 ■ Downlink
 ■ Platform
 ■ Launch
 ■ Build

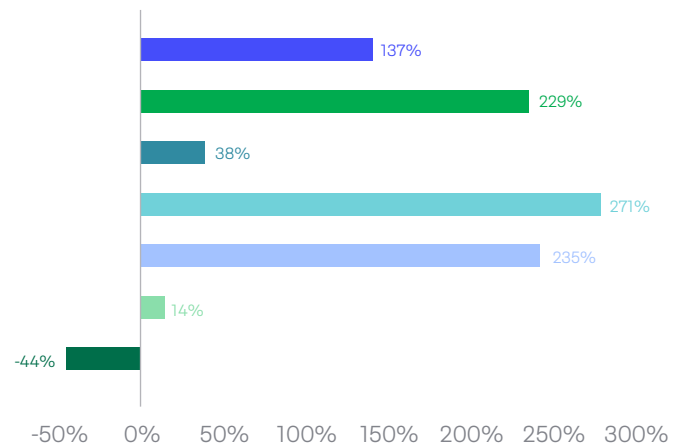
Annual Investment (\$bn)



Year-to-date (YTD) investment is on the verge of surpassing the total for all of 2023, putting us on track for a strong performance through 2024.

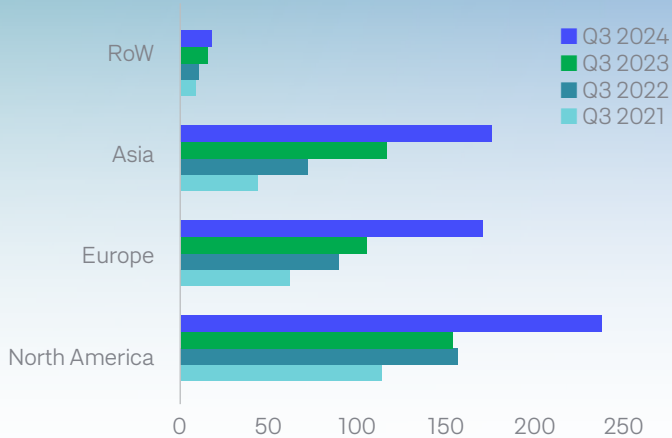
The Downlink segment experienced significant growth compared to the previous TTM period, historically a smaller area of investment. Downlink's performance was boosted by several major deals during the period like Armada raising \$55m, and Emposat raising \$71m.

Investment, TTM to Q3 24 vs to Q3 23 (% Change)



Investment in the Build segment has been steadily increasing since 2020. Given the capital-intensive nature of satellite and hardware manufacturing businesses, these companies have been securing large funding rounds to support scaling efforts. Over the past two quarters, Chinese satellite manufacturer Minospace has led the charge, raising \$137 million this quarter and \$138 million in the previous one. In the U.S., Muon Space led the segment with a \$56 million round this quarter, following Apex Space's \$95 million round in the prior quarter.

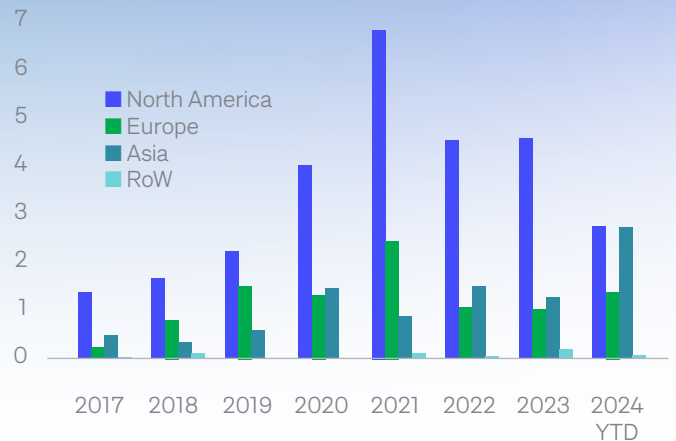
Number of Deals (TTM)



North America continues to lead by a significant margin in terms of the number of deals raised. North America recorded 235 in the TTM period. Asia has been steadily closing the gap in recent years, now surpassing the number of deals raised in Europe.

China represents the largest share of Asia's deal activity, accounting for 26 out of 54 deals in the current quarter alone.

Investment By Region (\$bn)

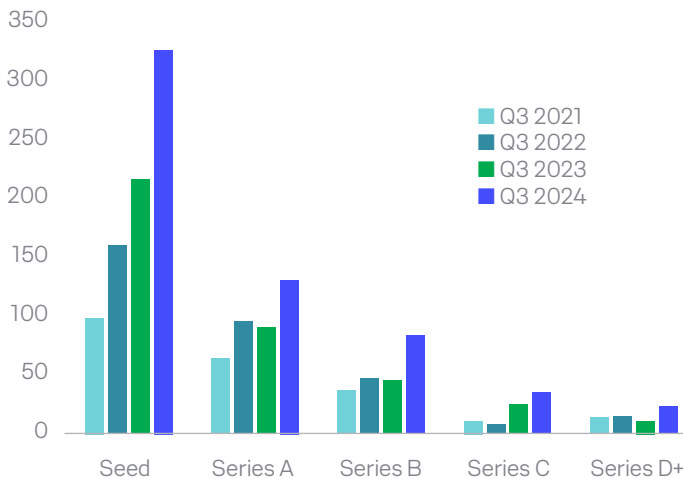


One of the most notable developments in Q2 '24 was that, for the first half of the year, Chinese SpaceTech investment surpassed that of the U.S. However, as of Q3 '24, this trend has reversed, with U.S. YTD investment reaching \$2.7 billion compared to China's \$2.1 billion.

While North America still leads in overall investment, China is following closely behind, narrowing the gap significantly.

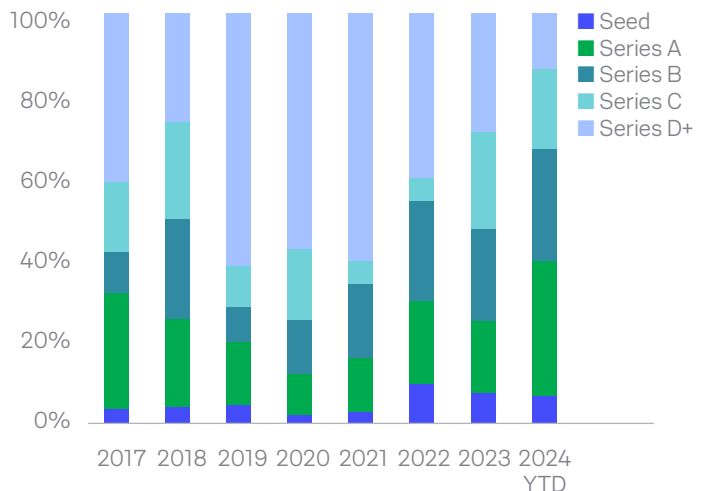
STAGE OF INVESTMENT ANALYSIS

Number of Deals (TTM)



Seed deals continue to dominate the majority of rounds raised. However, a notable trend in the year leading up to Q3 '23 was the increased difficulty in securing Series A and later-stage funding, with Series A and Series B rounds being particularly affected. This setback appears to have been temporary, as investor confidence has since rebounded, and activity in these later stages is showing signs of recovery.

Investment Concentration (\$bn)



As noted in the previous quarter, the key trend remains consistent: the landscape of space sector investment has shifted significantly. From 2019 to 2021, more than half of all funding was concentrated in a handful of mature Series D+ companies, including major players like SpaceX and OneWeb, which accounted for over 50% of the total investment during those years. Fast forward, this trend has gradually reversed as we approach 2024. Series D+ rounds now represent less than 10% of overall investment, marking a notable decline in the concentration of capital among more established companies. Instead, most of the year-to-date (YTD) investment in 2024 has been directed toward a new wave of SpaceTech firms in their early-stage growth rounds.

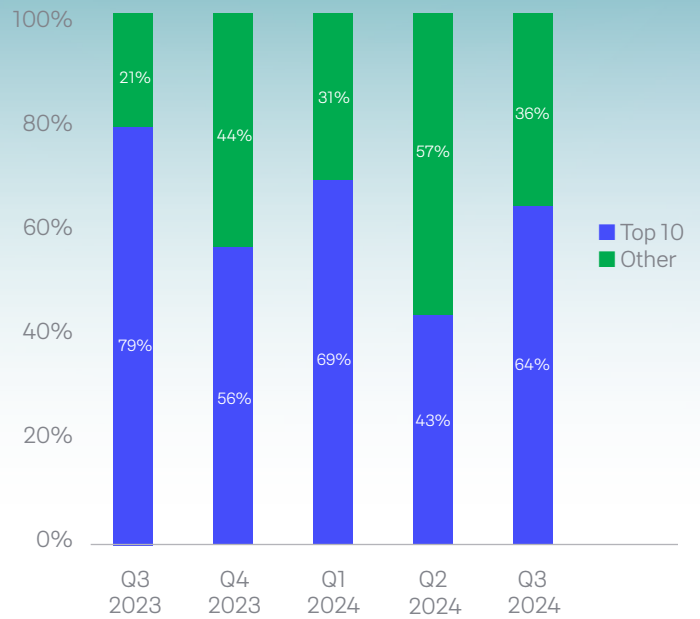
TOP 10 DEALS OF THE QUARTER

Q3 2024 Top Deals

The majority of top deals this quarter were concentrated in hardware-intensive sectors including satellite and rocket launcher technologies. However, the largest transaction of the quarter was World Labs, a geospatial intelligence company that has recently emerged from stealth mode with a top tier founding team, and syndicate of investors.

As in previous quarters, Chinese companies maintained a strong presence in the top 10 deals. This quarter featured companies such as Deep Blue, Minospace, and iSpace. These rounds, focused on satellite manufacturing and launch, are likely driven by China's ambition to develop capabilities comparable to SpaceX, ensuring they remain competitive in the global space race.

D-Orbit, the sole European company in this quarter's top list, extended its Series C round with an additional \$56 million, increasing the total raise to \$168 million. Although European companies often face greater challenges in accessing growth capital at the same scale, leading companies like D-Orbit do.



COMPANY	COUNTRY	DATA LIFECYCLE	SUB CATEGORY	STAGE	AMOUNT (\$m)
World Labs	US	Product	Data Platforms	Series A	\$230m
Astranis	US	Platforms	Satellites - Telecoms	Series D+	\$200m
Impulse Space	US	Launch	Launch Services	Series B	\$150m
Deep Blue Aerospace	China	Launch	Rockets	Series B	\$139m
Minospace (Beijing Weina Star Technology)	China	Build	Space Hardware	Series D+	\$137m
Orbitworks	United Arab Emirates	Build	Space hardware	Series D+	\$100m
iSpace China	China	Launch	Rockets	Series C	\$99m
X-Bow Launch Systems	US	Launch	Rockets	Series B	\$70m
Muon Space	US	Build	Space Hardware	Series B	\$57m
D-Orbit	Italy	Launch	Launch Services	Series C extension	\$56m

CONCLUSION AND OUTLOOK

In conclusion, the space sector continues to demonstrate strong growth and resilience, with five consecutive quarters of investment growth on a trailing twelve-month basis. We have once again seen a record number of deals, driven largely by a healthy pipeline of seed-stage businesses.

Despite financial challenges faced by some public companies, investor confidence remains robust, particularly in capital-intensive sectors like rocket launchers and satellite manufacturing. The continued focus on early growth rounds signals sustained long-term confidence in the industry.

While the US has reclaimed the top spot in year-to-date investment, China's rising investment levels are striking. We anticipate that the competition between the US and China for strategic dominance in space will remain a key driver of future investment. Overall, we remain positive and optimistic about continued growth through the remainder of 2024.

VC FUNDS + RESEARCH + ACCELERATOR

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.

Seraphim Space Investment Trust Plc is listed on the London Stock Exchange (Ticker: SSIT)

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.



Mark Boggett
CEO



James Bruegger
CIO



Rob Desborough
Accelerator &
Early Stage

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, 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



PLATFORM

- Any data collection / space platform (i.e. smallsat, 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



BEYOND EARTH

- In-Space infrastructure (i.e. Space stations)
- In-Space services (i.e. Satellite refuelling, servicing and repair)
- Utilising the microgravity environment for R&D and manufacturing

Current Portfolio

We are the most prolific investor in SpaceTech globally. Across our different activities, we currently have a portfolio of more than 100 of the world's leading SpaceTech start-ups.

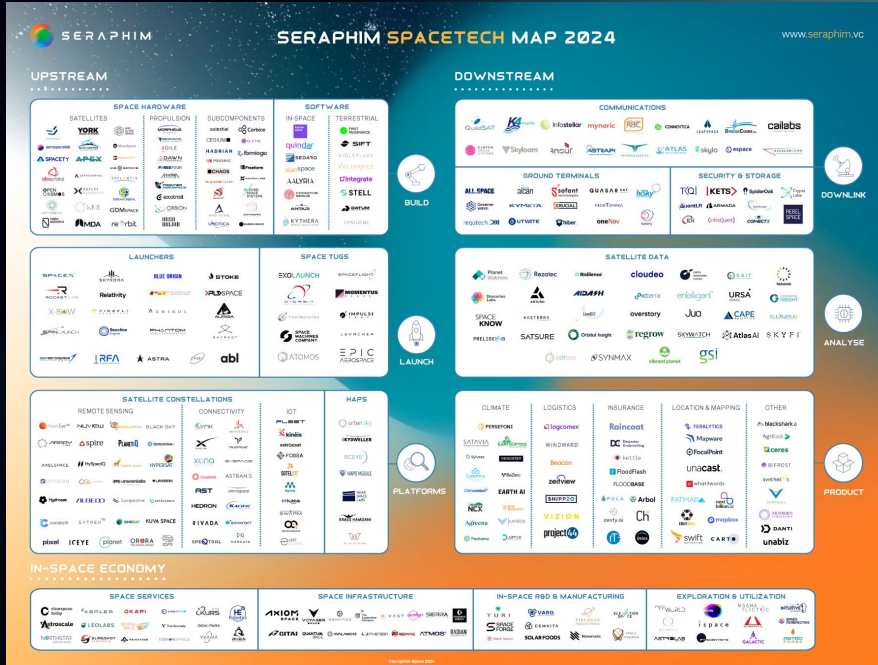
Fund



Accelerator



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.

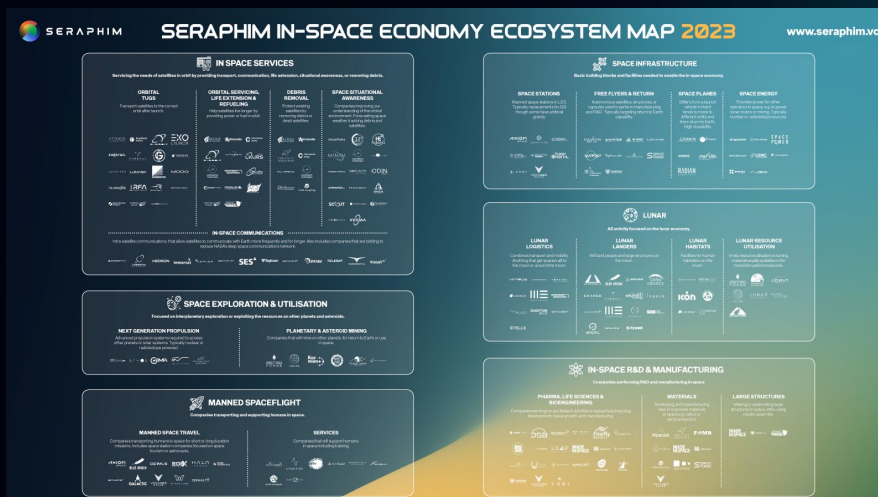


SERAPHIM SPACETECH ECOSYSTEM MAP 2024

Global VC backed emerging leaders per category.



[DOWNLOAD](#)



IN-SPACE ECONOMY MAP

Global VC backed companies providing services in space.



[DOWNLOAD](#)

www.seraphim.vc/research