



Space Venture 2023: Investment in the European and Global Space Sector



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1 EXECUTIVE OVERVIEW

The European Space Policy Institute's (ESPI) Space Venture is the Institute's annual report on private investment in the space sector published since 2018. The report focuses on **investment data for European and global markets**. Since 2022, the report **also features a special focus on Chinese markets**, and this year, **for the first time, there is also a section dedicated to African markets**.

As ESPI's data collection reaches the point where it almost spans one decade, it opens the opportunity to have a broader view of investment cycles in the European ecosystem. Currently, **Europe is in the midst of its best investment cycle to date, with the last two years (2022 and 2023) comprising more than half of all investment since 2014**. Nevertheless, **2023 saw a year-on-year decline** of €68 million (7%), while the number of deals was back to pre-2021 levels, suggesting a sharper downward trend.

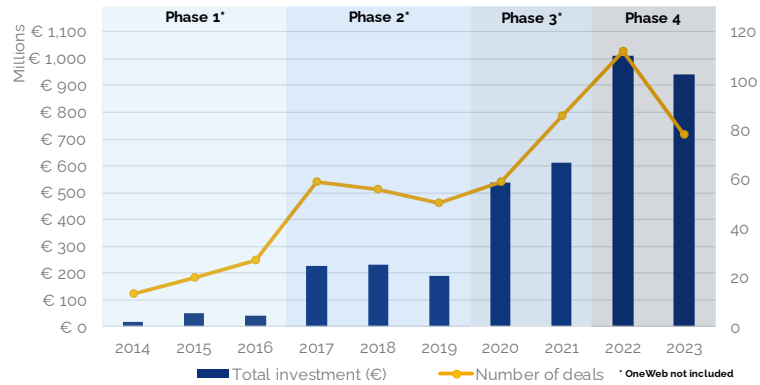


Figure 1: Investment value and number of deals per year 2014-2023 per phase of investment

The question now is whether this phase will persist, or will a new phase open up after 2023, and if so, for better or worse?

If Europe wants to **live up to its ambition of being an innovation powerhouse**, particular attention must be paid to the early-stage portion of the space startup ecosystem as well as to where capital, notably in larger funding rounds, is flowing in the space value chain.

In 2023, Seed funding faced significant headwinds with a YoY decrease of 71% in VC investment. For now, funding levels for Series A have remained stable (within the average recorded in the last four years). While Seed levels of deal activity are unlikely to return to those recorded in 2022, **public funding support initiatives are crucial to maintaining a ripe environment for further innovation and disruption potential**. Beyond early-stage investment support, public institutions should seek potential matches with their strategic objectives, to then provide **bridge mechanisms** (e.g.: loan guarantees) and **ultimately ensure revenue**, through **own demand or market creation**, for these startups to scale-up and prosper on European and global markets.

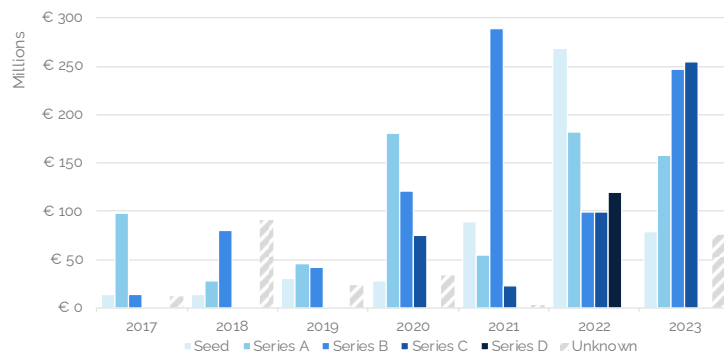


Figure 2: Yearly volume of VC investments by round from 2014-2023

Counter-intuitively, in Europe the largest funding rounds continue to concentrate on Launch and in-space services, while applications, where by far the most significant portion of the revenue in the space industry lies, such as in connectivity, while present, are not as strongly represented in recent years. Therefore, European and national public institutions should identify specifically where different sections of the space value chain fit programmatically and strategically, so as to signal where later-stage funding support should be directed.



Meanwhile, **globally the sector (within the perimeter consistently tracked by ESPI's Space Venture, see box below) experienced a 32% decline in total investment in 2023**, amounting to €6 billion. When compared with the peak €12.3 billion raised in 2021, it fell by 51%, sliding back to levels of investment reminiscent of those recorded in 2020 (€6.5 billion).

The decline, mostly driven by the U.S. market, results from a multitude of factors from the SPAC boom/bust to the decrease in access to venture capital, which forms the backbone of the NewSpace fundraising ecosystem (65% of all investment since 2019).¹ **Recent macroeconomic and geopolitical shifts, serve as a backdrop for these developments.** Accordingly, when zooming out to broader trends of VC markets, it mirrors that of the global funding dynamics.²

Why then is there such a discrepancy between current European and Global NewSpace investment trends?

If we assume a more negative outlook, one could argue that the European NewSpace fundraising ecosystem is **lagging in facing the repercussions of ongoing macroeconomic and geopolitical shocks**, especially when the broader European VC landscape has faced a heavy downturn in 2023.³ Moreover, as the European NewSpace sector matures, we saw an increase of approx. 150% in Series B and C rounds respectively, which carry higher ticket sizes, driving funding through fewer rounds. Indeed, **deal activity decreased by 30%, a significant drop compared to the 7% decline in investment value, returning to levels last seen before 2021.**

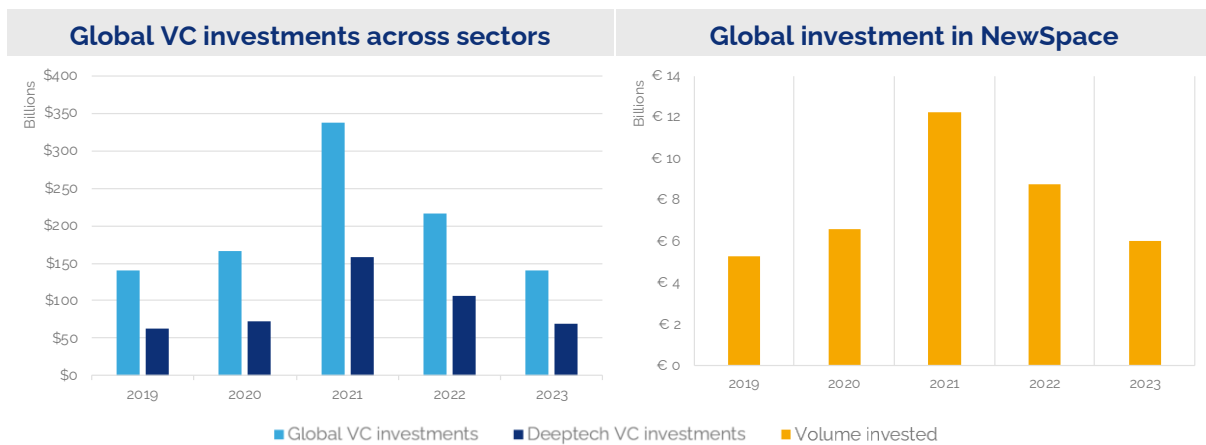


Figure 3: Global VC investment and Investment for global New Space ventures 2019 - 2023. (Source: ESPI, OECD, Space Ambition)

If we assume a more positive outlook, one could argue that what many saw as a weakness of the European NewSpace fundraising ecosystem, turned out to be a strength in volatile times. Overall, the VC ecosystem in Europe (beyond the space sector) is much less developed than in the U.S. Globally the end of a unique era of zero interest rates greatly affected VC markets. **The fact that VC did not penetrate European space funding markets as much as it did in the U.S.** (e.g.: in Europe, generalist investors are not as present in the space sector) **could have meant less exposure to these shocks,** while specialised investors have more skin in the game, and hence more incentive to remain patient and provide follow-on funding, given their strong exposure to the sector. Finally, the **continued increase of mixed public-private funding in recent years (see below) could be a factor for more resilience** in the proposed positive reading of the situation.

¹ When pairing VC and Angel investment.

² The Who and Why of Spacetechn Investments, SpaceAmbition (link); Final data for 2023 illustrates the extent of VC's tough year, Pitchbook (link)

³ Hot or not: Where European VC funding went in 2023, Pitchbook (link)



Regardless, one thing is certain, **the discrepancy highlights the differences between different fundraising ecosystems both in geographical terms (Europe vs U.S.) and also in different sectors (broader VC landscape vs space investment ecosystem).** European public institutions should be aware of such differences and take them into consideration **when developing policies to sustain a healthy funding ecosystem in Europe.** In this regard, ESPI's March 2024 Report explores **Alternative Funding Pathways for the European space industry.**⁴

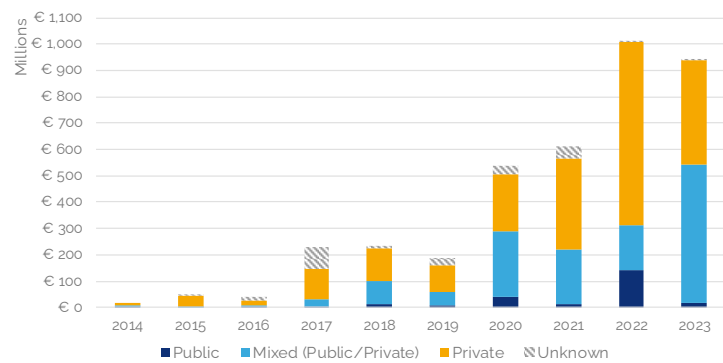


Figure 4: Type of consortium investing in NewSpace in Europe 2014-2023

This year's edition once again expands its horizons by hosting an **expanded special focus segment on China and, for the first time, on Africa.** China, saw a remarkable growth in investment, with **over €7.5 billion raised by more than 150 companies since 2014.** As it stands, 10 companies are in line to be **champions in the Chinese commercial space ecosystem, concentrating 34% of all funding** between 2014 and 2023 and with heavy support from Chinese institutional investors.

In the special focus on Africa, we delve into the emerging sector across the continent. While investment activity is nascent, **African space startups already managed to raise approximately \$184 million since 2015.** Notably, **84% of the investment was raised since 2021,** making up the first surge of NewSpace investment in Africa. Still, **79% of identified African NewSpace companies are bootstrapping.**

In conclusion, this report provides a unique **overview of NewSpace funding dynamics across different continents.** This report invites the reader to think about how different investment dynamics perceived through several metrics affect Europe and how it relates to other parts of the world. By better understanding them, Europe is more capable of recognising its place in it and learning from global investment trends. **Only with a firm platform based on reliable data, European institutions can act with certainty. This report aims to be that platform.**

⁴ Bridging the Financing Gap in the European Space Sector: Alternative Funding Pathways in Tightening Markets, ESPI (link)

Methodology Notes

ESPI’s Space Venture report focuses on space startups, meaning that the disclosed investment statistics exclude a sizable portion of the space industry. Accordingly, the perimeter in the European section of this report is more stringent (following a set of rules laid out in Annex A), while the Global section, broadly speaking, considers a startup to be a company that has received venture capital investment, as to be in line with other sources such as Bryce Tech. Additionally, although venture capital comprises most of the investment, **this report goes beyond that investment type, tracking acquisitions, private equity, debt, among others.**

Overall, mergers and acquisitions are difficult to track as values are often not publicly disclosed or only emerge well after the transaction is completed. Similarly to debt financing, there is a large proportion of undisclosed deals likely resulting in a significant **underrepresentation of the importance of this investment types** in the European space startup ecosystem.

ESPI has historically not included OneWeb within the “European space start-up” category for two overarching reasons:

Firstly, OneWeb operations mainly took place outside Europe. Although OneWeb was headquartered in London, a vast majority of the company’s activities, in particular related to manufacturing, took place in the U.S. under the umbrella of its (now sold) subsidiary OneWeb Satellites. **Secondly, OneWeb was no longer a startup according to common definitions, for example, in terms of the number of staff it employed.**

Moreover, OneWeb raised **over €5 billion** between 2014 and 2021, a **completely different order of magnitude** when compared to other space companies in Europe, making it difficult to effectively check dynamics in the European NewSpace sector. This does mean, however, that it is included in the global section of this report.

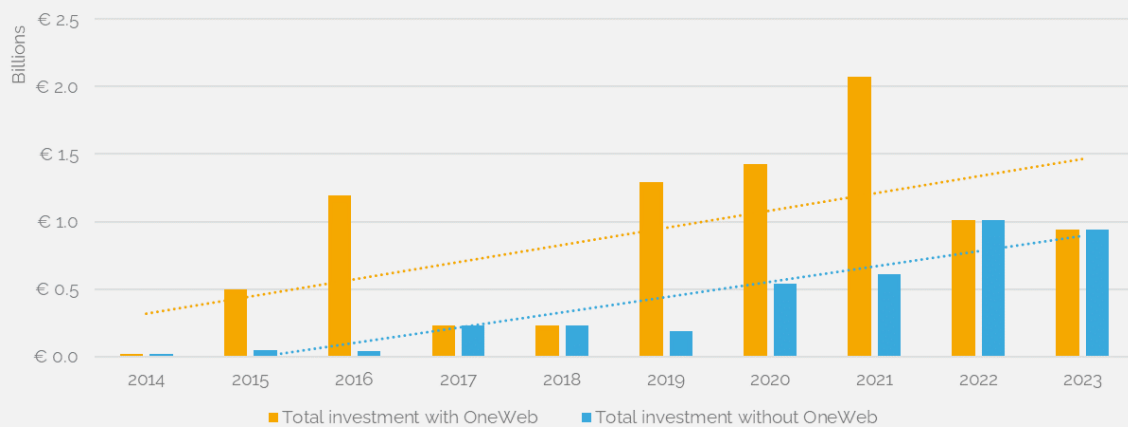


Figure 5: Total investment including OneWeb

Since 2021, OneWeb did not raise further rounds and it has since combined with Eutelsat in an all-share transaction. Even though one year prior to the transaction OneWeb’s estimated valuation was around \$3.4 billion, it is hard to quantify how that translates into the shares of the newly combined corporate structure. **For this reason, among others, and in line with similar publications, Space Venture does not take into account this combination in its data.**

2 INVESTMENT IN EUROPEAN SPACE STARTUPS

2.1 Top deals in Europe

In 2023, the top five investment deals totalled approx. €411 million.

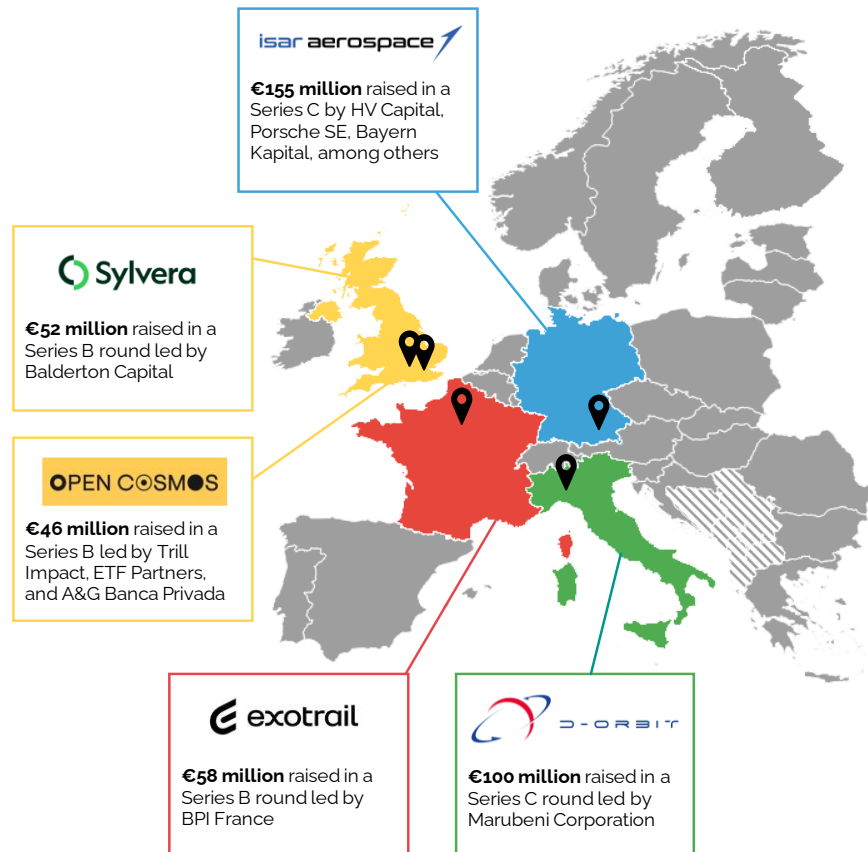


Figure 6: Top five European investment deals in 2023

Isar Aerospace (€155 million): The German launch company raised €155 million in its Series C round. The round included private and public actors. On the private side, it was supported by 7-Industries Holding, Bayern Kapital through its Scale Up Fund Bavaria, Earlybird Venture Capital, HV Capital, Lakestar, Lombard Odier Investment Managers, Porsche Automobil Holding SE (Porsche SE), UVC Partners, and Vsquared Ventures. Public sector support came from the EIF, through programs such as InvestEU, and the German Future Fund.

D-Orbit (€100 million): The Italian space logistics and transportation startup raised €100M in its Series C round led by the Japanese Marubeni Corporation and including participation from Avantgarde, a family office rooted in pharmaceutical and space industries, alongside renewed support from existing investors.

Exotrail (€58 million): The French end-to-end space mobility operator Exotrail has raised \$58M in a Series B round led by Bpifrance, Eurazeo, and CELAD, as well as existing investors. Exotrail's orbital transfer vehicle "SpaceVan" is set for multiple launches in partnership with Isar Aerospace. The company also plans to expand into the U.S. and Asian markets.

Sylvera (€52 million): The UK-based company dedicated to developing machine learning-based models, integrating data from satellites and other sources, to accurately predict forest carbon stocks, raised €52M in a Series B round led by Balderton Capital. The company is planning to expand to the U.S. market.

Open Cosmos (€46 million): The UK-based smallsat developer raised €46M in a Series B round led by three “impact investors”, the PE firm Trill Impact, ETF Partners and private banking group A&G. The startup will use the funds to expand its offer of end-to-end mission design and to expand internationally.

2.2 Value of the top five transactions

The combined value of the top five deals in the European space industry has remained unchanged at **€411 million** in **2023**, accounting for a significant **43%** of the total investment value. Interestingly, while the top 5 deals comprised only **6% of the total deal number**, they generated a substantial portion of the overall value.

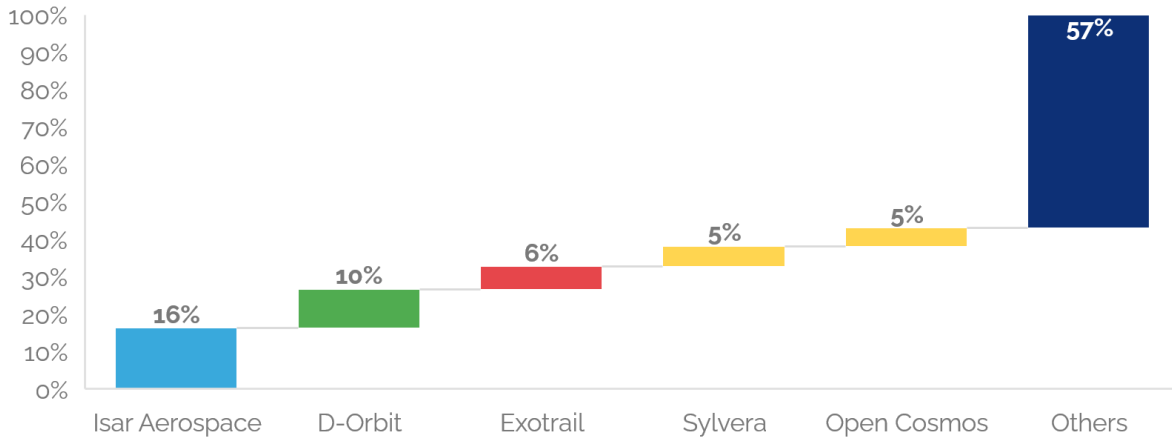


Figure 7: Share of total investment of top five deals in 2023

The analysis of the top five deals over time reveals **two distinct trends: (i) an increase in the combined value of these top deals, alongside (ii) a decreasing proportion of their contribution to total investments**. In 2014 and 2015, the top five deals accounted for over 90% of total investments. From then until 2020, the proportion fluctuated between 60 and 70%, except for 2019, when it dropped to 37%. Since 2021, the proportion of the top five deals has fluctuated between 41% and 45%. In 2023, the top five deals raised the same amount of funding as in the previous year, at approx. €411 million. However, their proportion increased marginally due to a decrease in the aggregate funding of all the other deals.

Still, overall, these trends suggest that **although the frontrunners of European space ventures are securing increasingly larger funds, their share within the overall ecosystem is gradually diminishing** highlighting an increasingly strong and dispersed investment ecosystem.

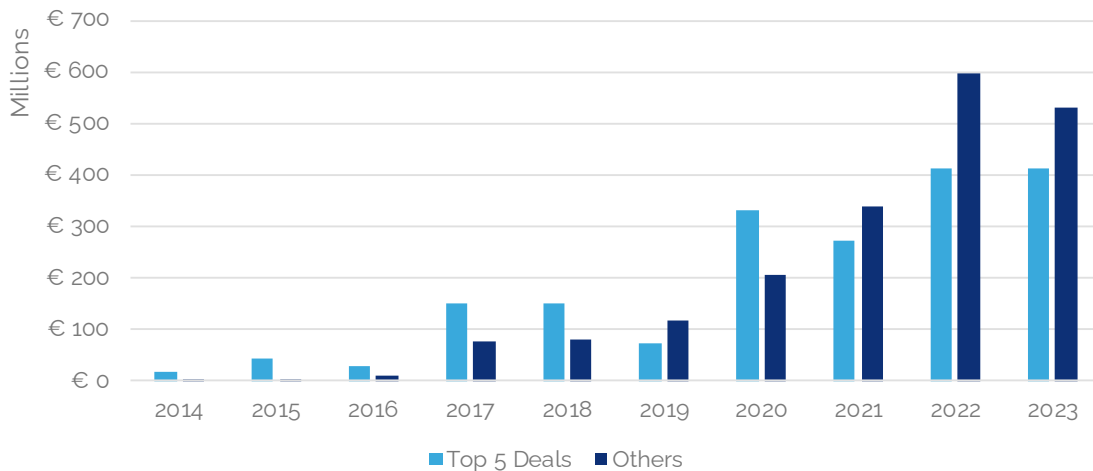


Figure 8: Share of top 5 deals in Europe since 2014

2.3 Overview and key indicators

In 2023, investment in European space startups **reached €942 million distributed across 78 deals**. This represents a slight decrease of 7% in investments, and a sharp **30% decrease in the number of deals, settling at levels just below those recorded in 2021**.

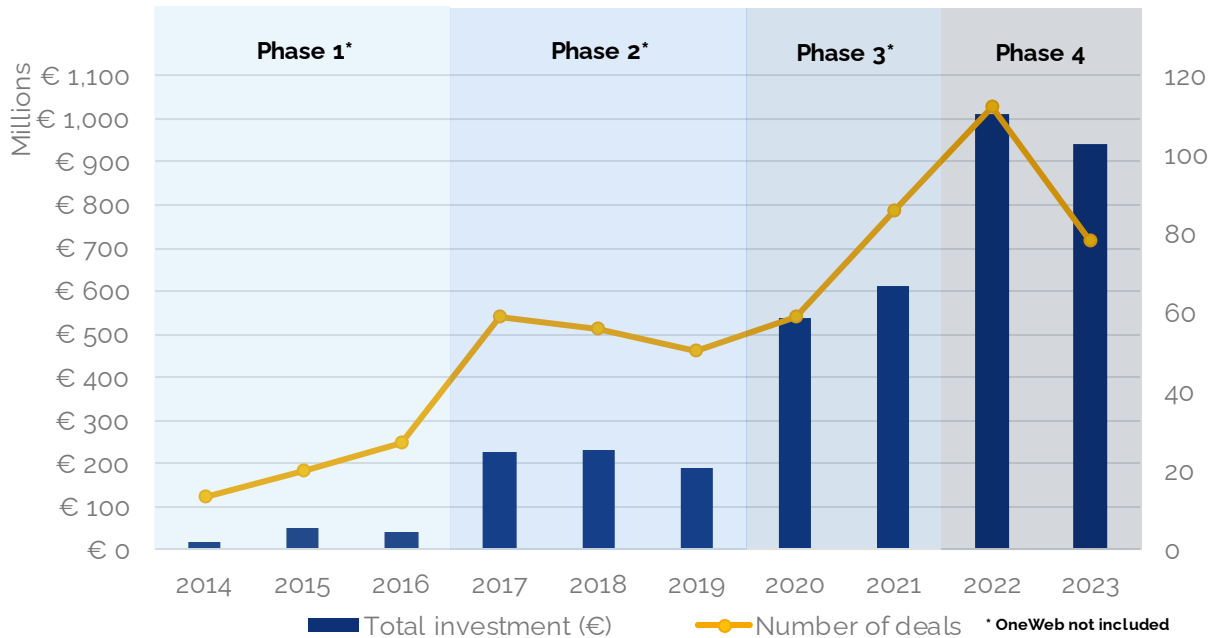


Figure 9: Investment value and number of deals per year 2014-2023 per phase of investment

Since 2014, ESPI recorded 560 private investment deals involving European space startups, totalling €3.9 billion, spread out through four distinct phases of investment. **Phase One** (2014-2016), during which European space startups took their first steps, securing small investment levels averaging €35 million and reaching a peak of €50 million. **Phase Two** (2017-2019), saw the first surge in investment, during which investments averaged €215 million. **Phase Three** (2020-2021) with a remarkable rise in investment, averaging €575 million and plateauing at €610 million.

Lastly, **Phase Four** (2022-2023), saw a third surge in investment, reaching a peak of just over €1 billion in 2022, which was followed by a small decline in 2023, setting the average at €975 million. **Notably, the difference in size between Phase Four and the previous ones is remarkable, as the last phase alone accounted for over 50% of all investment since 2014.**

The number of deals broadly reflects the first three phases of investment, following their patterns in tandem. Interestingly, even though both investment and the number of deals declined in 2023, there is a sharp divide between them, where **investment value suggests a plateauing effect, while deal number reverts to pre-2021 levels, suggesting a sharper downward trend.**

These figures provide a relatively **conservative estimate** of the total investment volume, as they exclude deals involving ventures that do not meet the ESPI definition of "European space startups" (see Annex A). Moreover, the total does not include investment in OneWeb, which is discussed in greater detail separately. However, this **exclusion does not impact the 2022 or 2023 figures**, as OneWeb did not receive any investments in those years. It is also important to note that the **value of 13 transactions remained undisclosed in 2023.**

2.4 Investment type

Venture Capital (VC) played a dominant role in funding European space startups during the 2014-2023 period, representing 82% of the total investment. This trend continued in 2023, with VC deals comprising most transactions (63) and representing 90% of the overall invested value. Overall, 2023 saw the consolidation of debt financing as a key complementary source of capital, while acquisitions narrowly surpassed the latter, reaching second place.

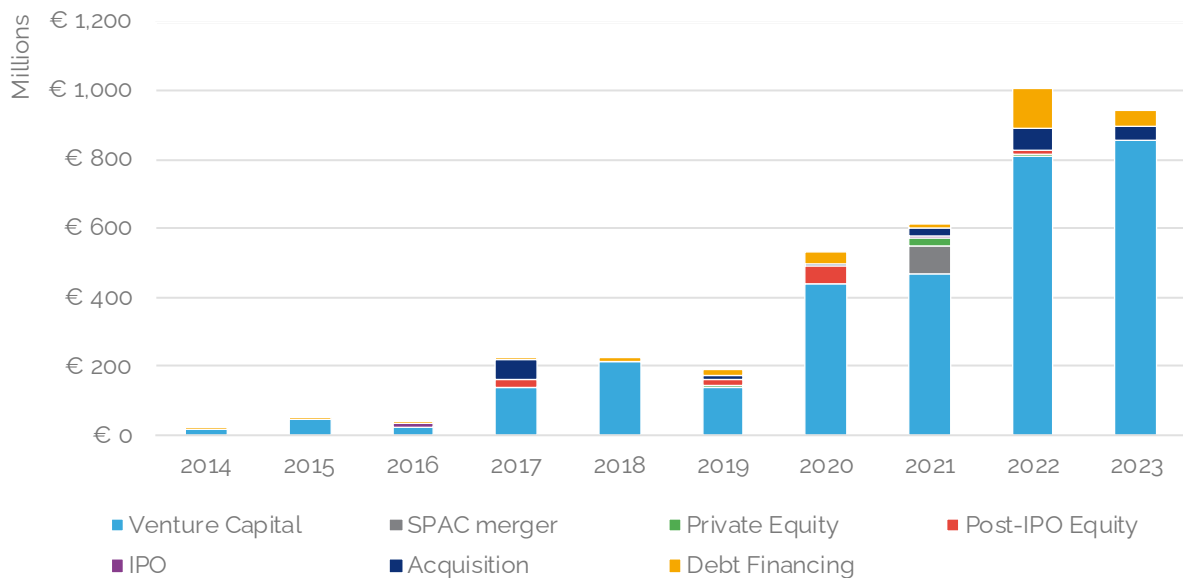


Figure 10: Investment type 2014-2023

In 2023 the number of Venture Capital deals hit a low of 63, compared with the all-time high of 88 deals achieved in the previous year, representing a **decrease of 28%**. Surprisingly, **despite the reduction in number of deals, Venture Capital investments increased by 6%** from €809 million in 2022 to €855 million in 2023, thus a reaching a remarkable 91% share of investment in 2023.

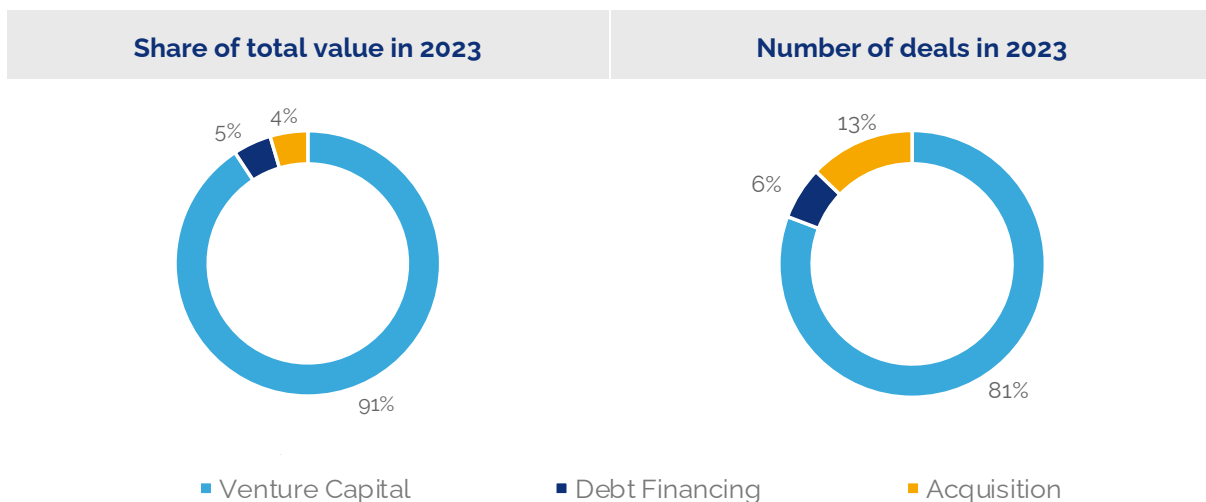


Figure 11: Distribution of investment by category in 2023

Following VC, **debt financing** ranked as the second most significant type of investment in 2023, amounting to approximately €43.9 million, representing a sizable drop compared to the previous year (€119.5 million). Nevertheless, **in 2023 debt financing was considerably more dispersed**, with



the largest deal accounting for 59% of the total, compared with 79% in 2022. Moreover, it still represents the second-best result for this financing type since 2014. This reveals that **more companies are receiving more loans, suggesting on one end the consolidation of this financing type as an important vehicle for European space startups**, while on the other suggesting that companies perhaps seek alternatives to not risk lower valuations in follow-on funding rounds.

Acquisitions ranked as the third most significant type of investment in 2023 with a total volume of around €43.2 million. Notably, this figure stems solely from the publicly available information on the acquisition of Sinergise, the reason being that acquisition values are often not publicly disclosed or only emerge well after the transaction is completed. Accordingly, **while ESPI recorded ten acquisitions in 2023, only one had its value disclosed**. Similar to debt financing, the large proportion of undisclosed deals likely results in a significant underrepresentation of the importance of this investment type in the European space startup ecosystem.

2.5 Investment stage

The relative distribution of funding rounds within Venture Capital (VC) financing from 2014 to 2023, sees an increase of VC across the board, with Seed having reached its peak in 2022 and Series A reaching its plateau above €150 million but not surpassing the €200 million barrier since 2020. Series B started to stabilise in 2021 at around €250 million, and Series C reached its peak of €255 million in 2023. Series D only has one recorded deal in 2022.

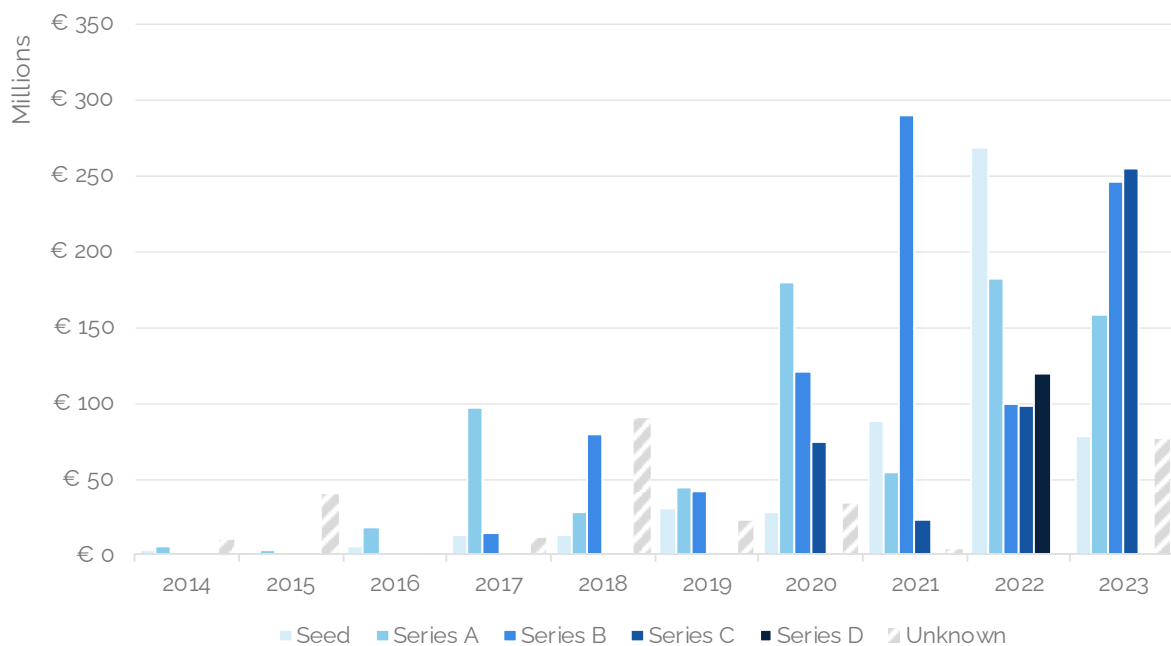


Figure 12: Yearly volume of Venture Capital investments by round from 2014-2023

Notably, the upward trend of consistent year-on-year increases in Seed funding recorded since 2014 was broken in 2023. Accordingly, in 2023, startups only raised around €79 million over 25 funding rounds, representing a **year-on-year decrease of 71% in Seed funding**, dropping back to 2021 investment levels. Even if the outliers Celestia Aerospace and E-Space, which accounted for more than half of the Seed investment in 2022, are removed, the yearly drop in investment still reaches 36%. Moreover, the remarkably low amount of seed funding rounds also confirms the break with the trend, representing levels of activity similar to those recorded in 2020.



Series A investment has also decreased year-on-year by around 13%, representing €158 million raised over 10 investment rounds in 2023. Moreover, **the investment volume for this funding stage appears to have reached its plateau over the last four years**. Indeed, the average funding amount since 2020, sits at €144 million is very close to the total raised in 2023,

On the other hand, in 2023 a total of **€247 million were raised in Series B funding rounds, leading to an extraordinary year-on-year increase of 148%**, rebounding to levels close to its peak in 2021 after a slump in 2022. Moreover, the investment was distributed across six deals, above the amount recorded last year, but still considerably below the heights recorded in 2021 (13 deals). Similarly on the upside, in 2023 **Series C rounds raised a record €255 million across two deals, resulting in a 158% increase** compared with the previous year.

Even though there was no Series D raised in 2023, **the increase in Series C funding paired with the increase of companies receiving late-stage funding** (until 2022 only ICEYE had received Series C+ funding, since then six more companies managed to secure late-stage funding), points to the **growing maturity of the sector**.

2.6 Median deal time

The first ESPI recorded Series A round was in 2014. Since then, the median deal time from a Seed round to Series A is 668 days (**22 months**), meaning that between 2014-2023 startups have taken approx. 1.8 years to raise a Series A since their Seed round. **The first recorded Series B raise by a European space startup was in 2017**. The median deal time between 2017-2023 was 936 days (**31 months**), or two and a half years to progress from the Series A to the next round.

Overall, when looking at the median deal time on a yearly basis, **between 2018 and 2021 there was a sharp decrease from Seed to Series A**, from a peak of 47 months (almost four years) to approx. 14 months. Nevertheless, **since 2021 it rose by approx. 45%**, to 20 months. Simultaneously, the **median number of days from Series A to Series B has also decreased up until 2022**, from a similar peak of 49 months (just over four years) to just 15 months. However, **in 2023 it rose considerably**, reaching 34 months (almost three years).⁵

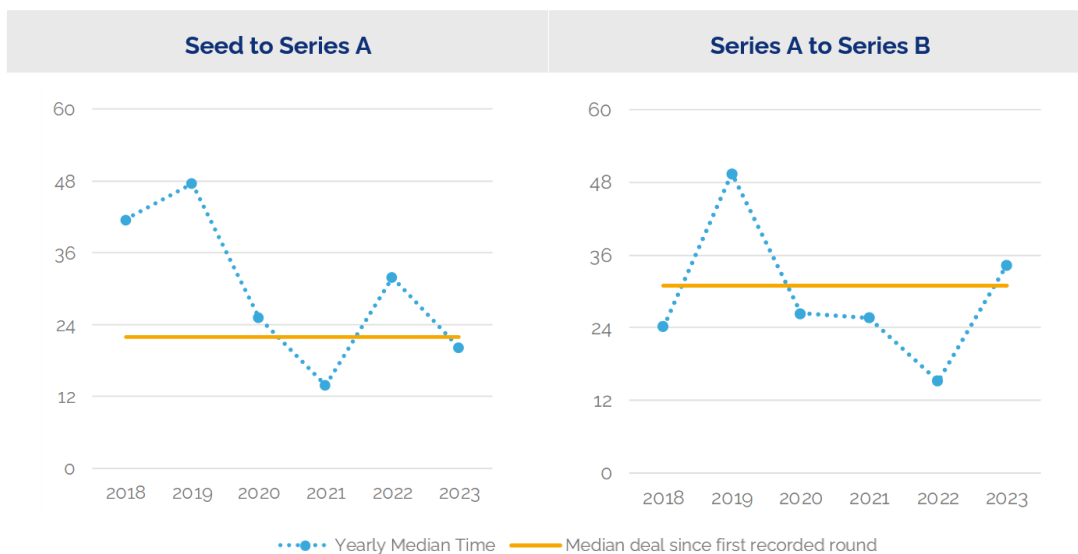


Figure 13: Yearly median deal time from Seed to Series A and Series A to Series B (2018-2023) and corresponding median deal time since first recorded round

⁵ The dataset from Series A to Series B rounds is still rather small, therefore comparison with the previous stage is limited.

2.6.1 Graduation Rates at Seed stage

A graduation rate represents the ability of startups to scaleup by moving from one funding round to the next. From 2014 to 2021 **only 31% of the startups that raised a Seed round managed to graduate to Series A.**

We do not include data from 2021 onwards because the companies are still within the median deal time to raise money. **The fact that a startup was not able to graduate to Series A within this period does not mean it will not do so in the future,** but it decreases its chances.

Notably, the percentage of startups able to graduate has been decreasing over time. While there has been a substantial increase in funded startups at Seed stage since 2019, graduation rates have remained below 30% meaning **while more money poured into the sector, its efficiency decreased.**

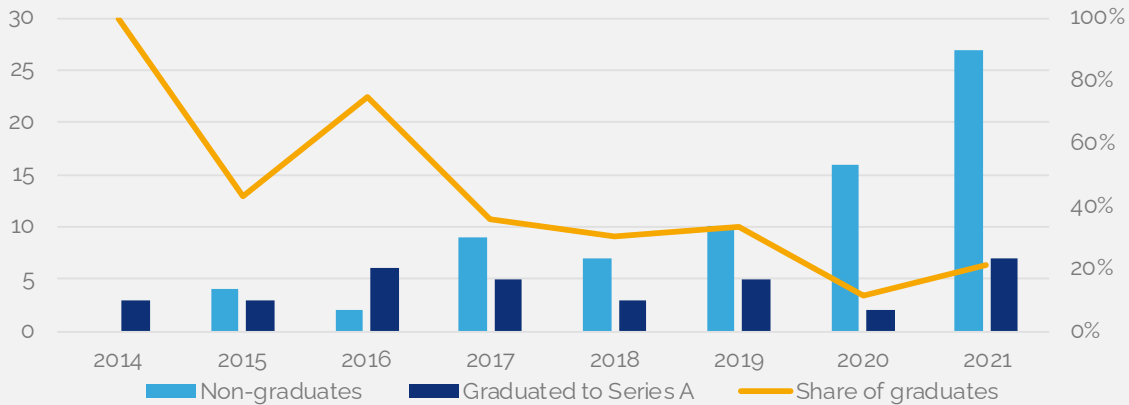


Figure 14: Graduation Rate of startups from Seed to Series A (2014-2021)

2.7 Support to investment from public institutions

In 2023 the primary element to be highlighted is the **growth in funding rounds with the participation of public and private investors** (i.e., mixed consortiums) **which, for the first time since 2014, surpassed 50% of the total investment raised,** representing a 209% year-on-year increase. ESPI tracked a total of 21 such deals out of which the **main investment type used has been Venture Capital,** but debt financing also took an important role.

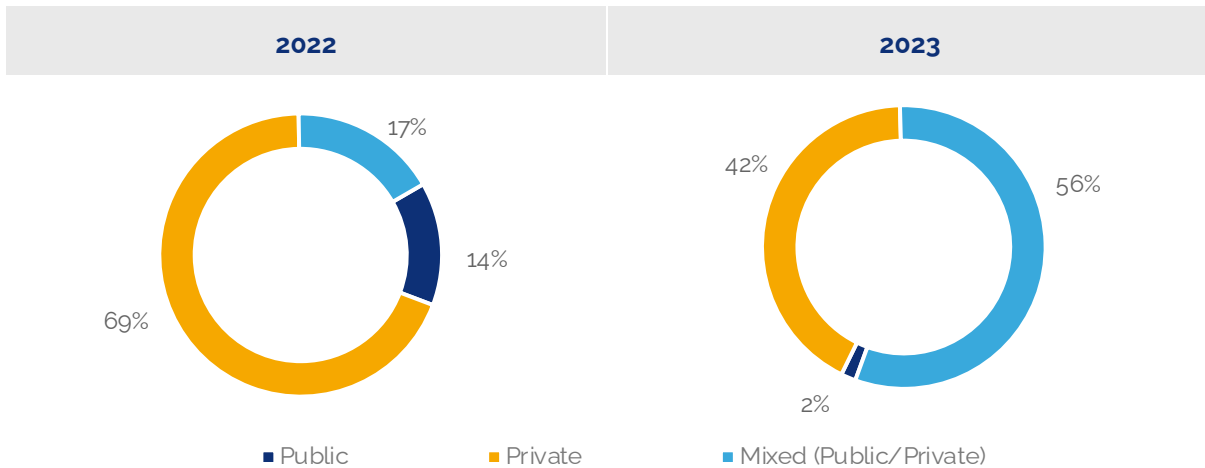


Figure 15: Share of investments by type of consortium



Investments with the exclusive participation of **private investors only represented 42% of the investment in 2023**, leading to a year-on-year decrease of 43%. The growth in public/private funding in the context of a decrease in standalone private investment in 2023, highlights the **importance of public funding as a tool to keep private investors engaged with European space startups** in the context of a difficult macroeconomic environment.

On the other hand, investments with exclusive participation of **public investors decreased considerably in 2023, only representing 2%** of the total investment. However, it is worth noting that the 2022 performance of 14% is an outlier in the data, skewed by the €95M debt allocated by the Scottish Enterprise to Mangata Networks that year. Nevertheless, 2023 still saw a lower-than-usual ratio of investments by public players.

2.8 Geographical distribution of recipients

2.8.1 Geographical distribution of investment in 2023

The figure below shows the geographical distribution of the total value of investment operations in space startups according to the location of their headquarters.

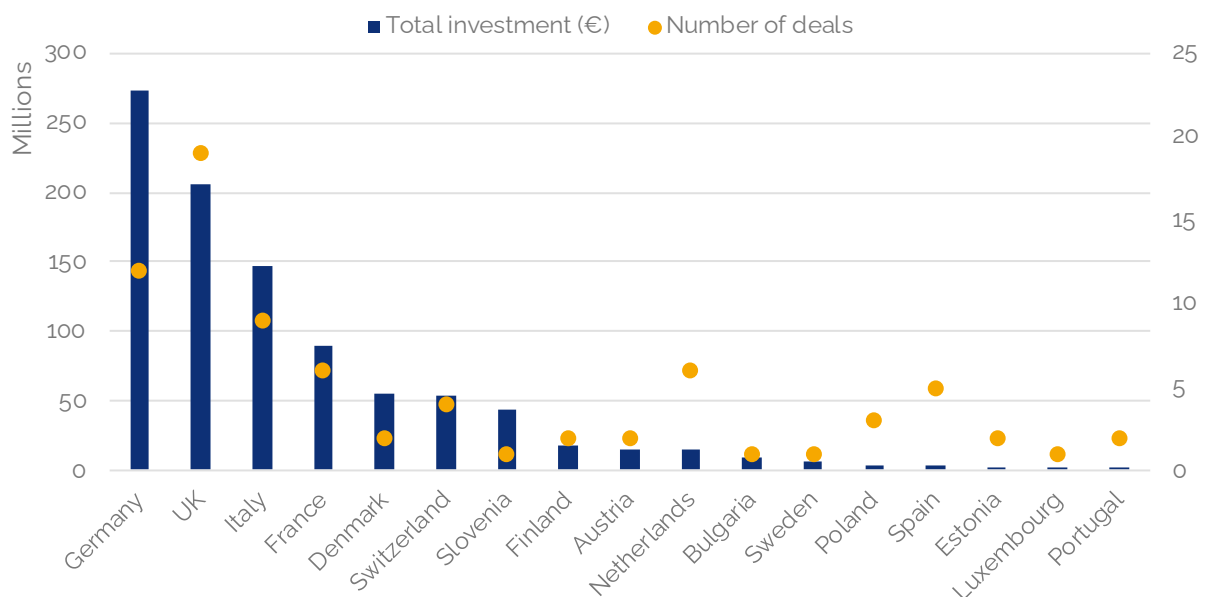


Figure 16: Geographical distribution of investment in Europe in 2023

Although investment remains widespread across European countries, the majority of deals and volume in 2023 continued to take place in countries that have historically invested heavily in the space sector (the top five countries accounted for 82% of the total value, up from 79% in 2022).

- **Germany:** Germany saw a remarkable 127% rise in investments from €120 million in 2022 to €273 million, climbing two spots, and reaching first place. However, the number of deals has decreased from 16 to 11. The difference in investment and deal activity can be explained by Isar Aerospace's €155 million Series C round, which accounts for more than half of the total investment raised.
- **United Kingdom:** Despite maintaining strong investment values, in 2023 they are slightly under the previous year's, down by 11%, from €231 million in 2022 to €205 million in 2023. Similarly, the number of deals also decreased from 24 to 19. The UK is less dominated by a few large deals and instead exhibits a more even distribution compared to its peers. British



success stories include a €52 million Series B round by Sylvera, a €46 million round by Open Cosmos, and a €44 million round by Reaction Engines.

- **Italy:** Italy reached third place with one of the highest year-on-year growth rates, increasing from €12 million in 2022 to €148 million in 2023. This not only represents a breakaway from 2022 numbers but also other previous years, which never saw investment surpass €23 million. This was largely driven by D-Orbit's €100 million Series C round. Nevertheless, even excluding this outlier, there were some other important deals such as Leaf Space attracting a combined €35 million in a mix of a Series B round and debt financing and a €5 million Seed round from Sidereus Space Dynamics.
- **France:** France saw a significant 57% fall in investment, from €205 million in the previous year to €89 million in 2023. Likewise, deal activity also fell considerably from 23 deals to just 6 in 2023. Exotrail's €58 million Series B round was the highlight in the French space investment ecosystem.
- **Denmark:** Denmark reached the top five raising €55 million across two funding rounds. Most of the funding came from the €46 million Series B round raised by Agreeena, while QuadSAT raised €9 million in a Series A round.

2.8.2 Geographical distribution of investment since 2014

Since 2014 the **UK** has outperformed all other European countries by a significant margin. Furthermore, it has been able to sustain private space investment regularly year on year, **exceeding €1.2 billion of cumulative investments since 2014**. Moreover, with 195 deals over this period (2014-2023), the UK has more than twice as many deals as the next-ranked country (Germany).

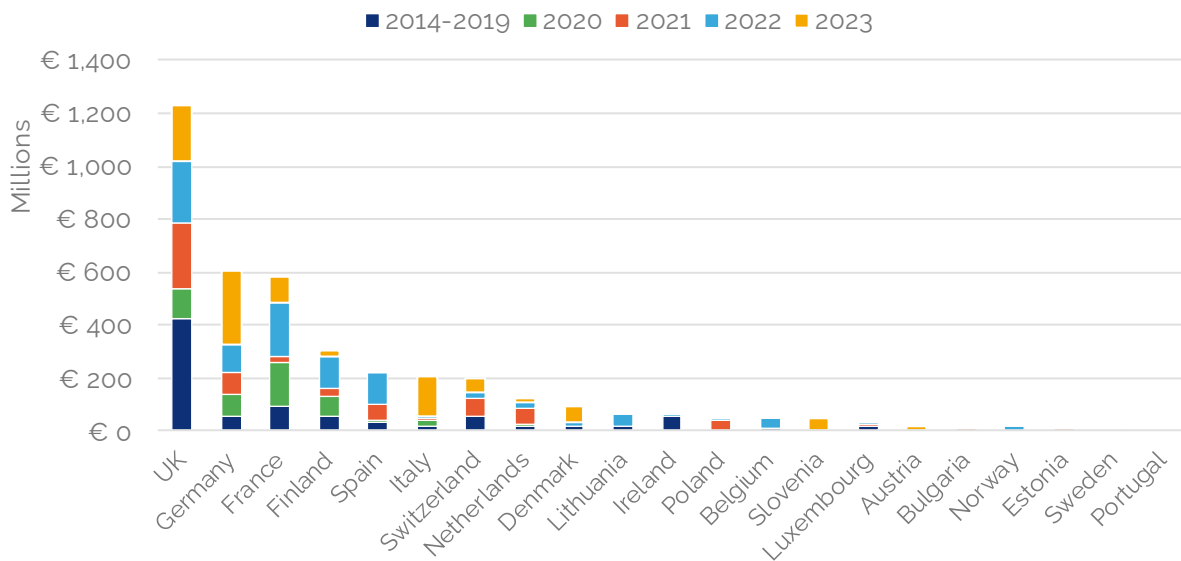


Figure 17: Share of European private space investments since 2014

- The second-best performing country in Europe is Germany, in which NewSpace startups have raised a total of €604 million since 2014.
- The third best-performing country regarding New Space investments in Europe is France with a total raised of €579 million since 2014.
- Finland comes fourth in terms of investment since 2014. Thus far, Finnish startups raised €300 million, 91% of which was from ICEYE.



- The fifth-best performer in Europe since 2014 is Spain with a total raised by New Space companies of €224 million, **more than half of which was raised in 2022**.
- The 6th best-performing country since 2014 is Italy, which has raised a total of approximately €206 million, 71% of which was raised in 2023.

2.8.3 Geographical origin of lead investors

Another interesting factor to assess is the distribution of investments according to the origin of the lead investor. In the case of funding rounds involving more than one investor, only the origin of the lead investor is represented in this case. The share of undisclosed lead investors in Europe was 3% in 2023.

The geographical distribution of investors offers insights into the **weight of European and foreign funds in the overall private investment landscape** for space startups in Europe. This is especially relevant given the growing concerns over the acquisition of strategic European assets by foreign organisations looming on political agendas across the continent. One example of such an attempted takeover was the French geo-intelligence company Prelegens, which in 2020 was reportedly approached by In-Q-Tel.⁶ Another example was in 2023 when Germany's government blocked the takeover of the startup KleoConnect by Chinese investors⁷.

Notwithstanding, the majority of investments made in European space startups in 2023 were still mainly led by European investors. The share led by European investors increased marginally from 78% in 2022 to 79% in 2023. This represents a higher share when compared to the observed ratio over the 2014-2021 period, where 70% of all investments were led by European investors.

European investors remain the most important source of financing for European space startups:

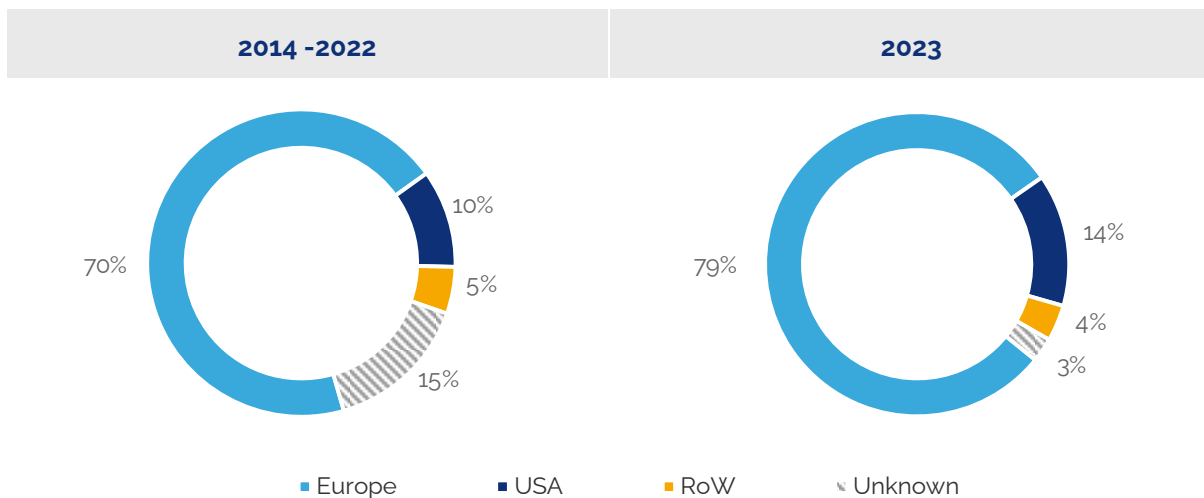


Figure 18: Geographical distribution of lead investors up to 2023 by number of deals

The overall portion of investments led by non-European investors seems to have reached its plateau, remaining very similar for the past three years, averaging 18%, in line with their share in 2023. Similarly, the same can be observed with the share of deals led by U.S. investors, which averaged 15% in the past three years, almost the same as recorded in 2023 (14%). **Nevertheless, the investment value led by non-European investors has increased over the same period, from 16% in 2021 to 28% in 2023**, revealing that the importance of foreign investors, although more concentrated over a smaller amount of rounds, has been increasing.

⁶ Les SPAC américains à la conquête des startups françaises du spatial, EPGE, (link)

⁷ Berlin blocks complete takeover of satellite startup by Chinese firm, Reuters, (link)

2.9 Investment across the space value chain

The figure below shows the distribution of the total value of investment according to the core business of the startup (bars) and the number of deals concerned (dots).⁸

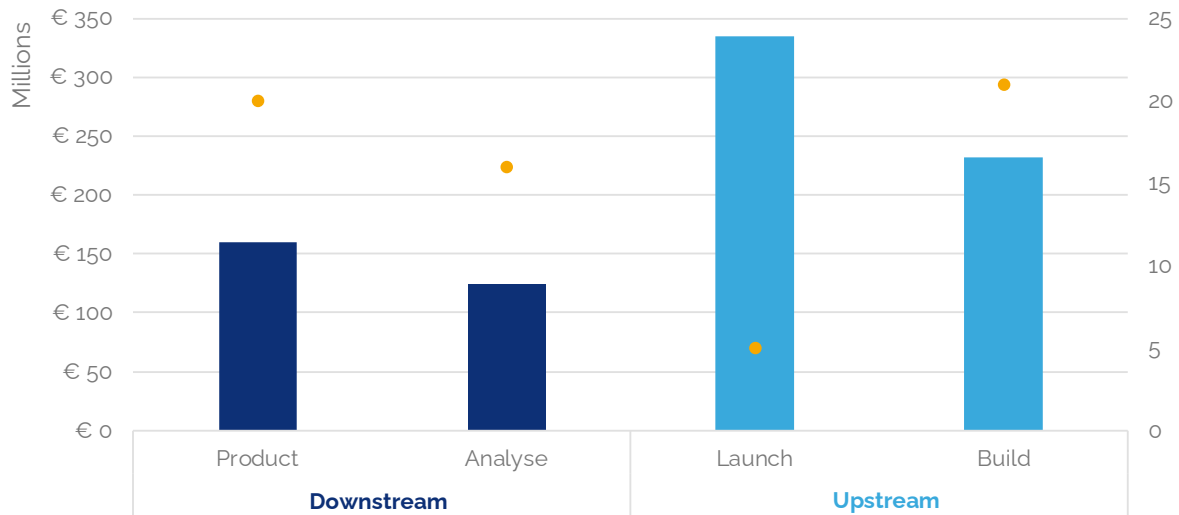


Figure 19: Volume and number of deals across the European space value chain in 2023

The upstream sector accounted for 61% of the total investment (2021: 59%). With €570 million invested over 27 deals, the average value per deal for the upstream segment was €21.1 million.

- The **Launch segment**, which development and manufacturing of launch systems and/or provision of launch services, accounted for the largest share of volume in 2023, raising a total €334 million across 5 deals. Within this segment, companies focused on the development and manufacturing of launchers contributed €234 million. In particular, Isar Aerospace's €155 million round represented almost half of the total raised.
- The **Build segment**, which involves the development and manufacturing of space systems, accounted for the largest share of deals in 2023, contributing €232 million across 21 deals. This growth was primarily driven by Exotrail, Open Cosmos, and The Exploration Company, together raising €145 million, accounting for more than half of the segment's total investment

The downstream sector accounted for 39% of the total investment (2021: 40%). With €392 million invested over 50 deals, the average value of a deal was €8.1 million.

- The **Product** segment, which offers space-enabled products to end-users, accounted for €160 million over 20 deals, surpassing the Analyse segment as the largest downstream segment. Agreeana and Sylvera contributed heavily to the total, together raising €98 million, almost two-thirds of this segment's total.
- The **Analyse** segment, which provides value-adding solutions for the exploitation of space, still accounted for one-third of the investment raised in downstream, securing €123 million across 16 deals. The €43 million acquisition of Synergise was a major contributor to this segment.

⁸ Note: the value of investment in downstream startups is probably underestimated due to the inherent difficulty to track investments in the downstream sector, which involves companies whose business is often only partially related to space. With a growing cross-fertilization between space and terrestrial technologies, the distinction between investments within and outside the space sector is poised to become increasingly blurred.

3 SPACE INVESTMENT IN A GLOBAL CONTEXT

In 2021 the ESPI Investment Database was expanded to cover global investment in space startups since 2019. In a similar fashion to European deals, information on foreign deals is sourced from a combination of online public resources, financial databases such as Crunchbase and Pitchbook, and private information sources. All deals are reported in euros using ECB exchange rates averaged on a monthly basis. Just like for the European segment of this report, a space company is defined as a company providing analytics originating primarily from space-based systems, or manufacturing ground and or upstream equipment and provides services that rely on such systems.

To provide comparable metrics with already established sources such as BryceTech and Seraphim capital, ESPI uses a broader “New Space” perimeter in this chapter, compared to the previous chapters, that features a less stringent definition of “startups” and includes companies such as SpaceX or OneWeb.

3.1 Global investment dynamics

Global investment in space startups (within the expanded perimeter) in 2023 totalled **€6 billion over 266 funding rounds**, which represents a **32% year-on-year decrease in funding** and a 12% decrease in deal activity. Moreover, compared with the peak of €12.3 billion reached in 2021, it represents a drop of 51%. However, it is important to note that 2021 was an exceptional year and should be seen as an outlier. Nevertheless, the CAGR is now considerably lower at 3% since 2019.

There are multiple reasons for the drop since 2021: i) the SPAC phenomenon, which reached its pinnacle in 2021 helping raise almost €3B, has largely subsided since then, **ii) large acquisitions**, which greatly boosted investment volume in 2022 have also not taken place in 2023, and **iii) venture capital**, the backbone of the NewSpace fundraising ecosystem, has decreased considerably. Underpinning some of these dynamics are **significant geopolitical and macroeconomic changes**, such as “slowbalisation” and the end of the “low-interest rate era”, which have affected investors’ confidence, generally becoming more cautious especially in high-tech industries, **a theme further explored in ESPI’s “Bridging the Financing Gap in the European Space Sector” report.**⁹

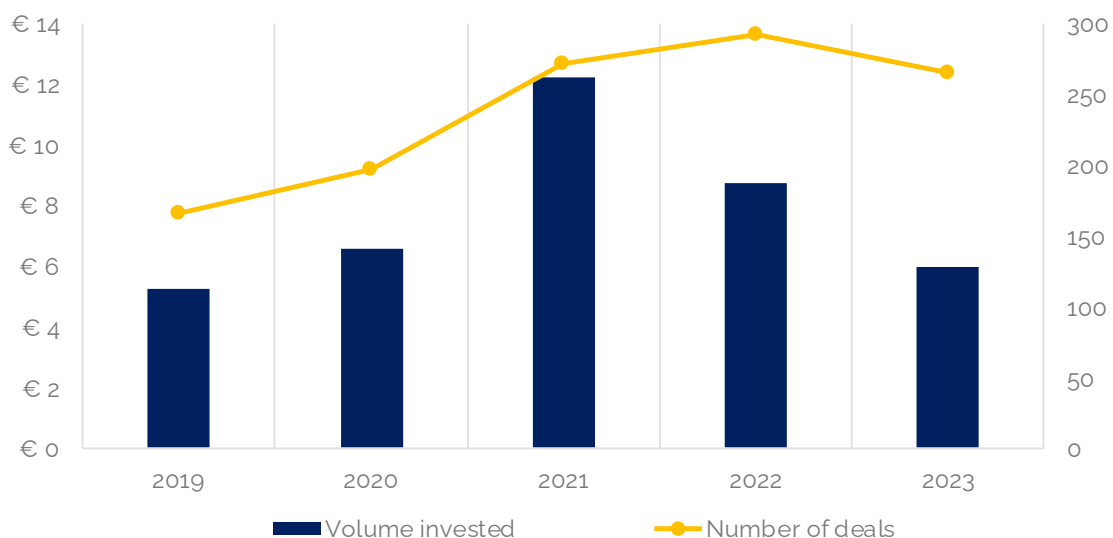


Figure 20: Global Investment & Deals

⁹ Bridging the Financing Gap in the European Space Sector, ESPI, (link)

Major deals outside this report's perimeter

Every year, ESPI's Space Venture Europe report excludes some deals because they do not fit into the perimeter laid out in Annex A. Nevertheless, **this year there were an unusual number of large deals outside our perimeter** that are worth mentioning both to keep our readers informed and explain possible differences in data with other reports.

Some examples are Aerojet Rocketdyne's acquisition by L3Harris (€4.3 billion), BAE acquisition of Ball Aerospace (€5.1 billion), OHB take-private deal with KKR, and Hemisphere GNSS acquisition by CNH Industrial.

Another deal that some reports include is a \$750 million round (€694 million) raised by SpaceX, however ESPI decided not to include it given that there is no confirmation that the company actually managed to close it in 2023.

Venture Capital still accounts for the largest share of financing worldwide. In 2019 this share was 45%, slightly decreasing in 2020 to 31%. Since 2021, its share has been increasing consistently, reaching a remarkable 73% of investment in 2023. Nevertheless, its absolute value is **at the lowest level since 2021**. In 2023 only €4.3B were raised, well under the €5.1B in 2022 (-18%) and €6.8B in 2021 (-38%).

Another notable trend is the **absence of major acquisitions in 2023**, which had reached a record €1.8 billion in the previous year. Importantly, the investment value of acquisitions is often not disclosed, but even when looking at the number of recorded deals, 2023 saw only 20 deals, far less than the heights recorded in the previous year (39) and slightly under 2021 (22). SPAC deals have also largely subsided in 2023, a phenomenon already in decline since 2021.

Interestingly, **debt financing saw a 53% year-on-year increase, hitting a high of €387 million**. Debt has been increasingly more important in the fundraising strategy of NewSpace companies, increasing its share of the total investment raised from 0.4% in 2019 to 7% in 2023. ESPI also accounts for the self-capitalization into Blue Origin from Jeff Bezos which is approximately \$1 billion per year and is included as an "Angel" investment.

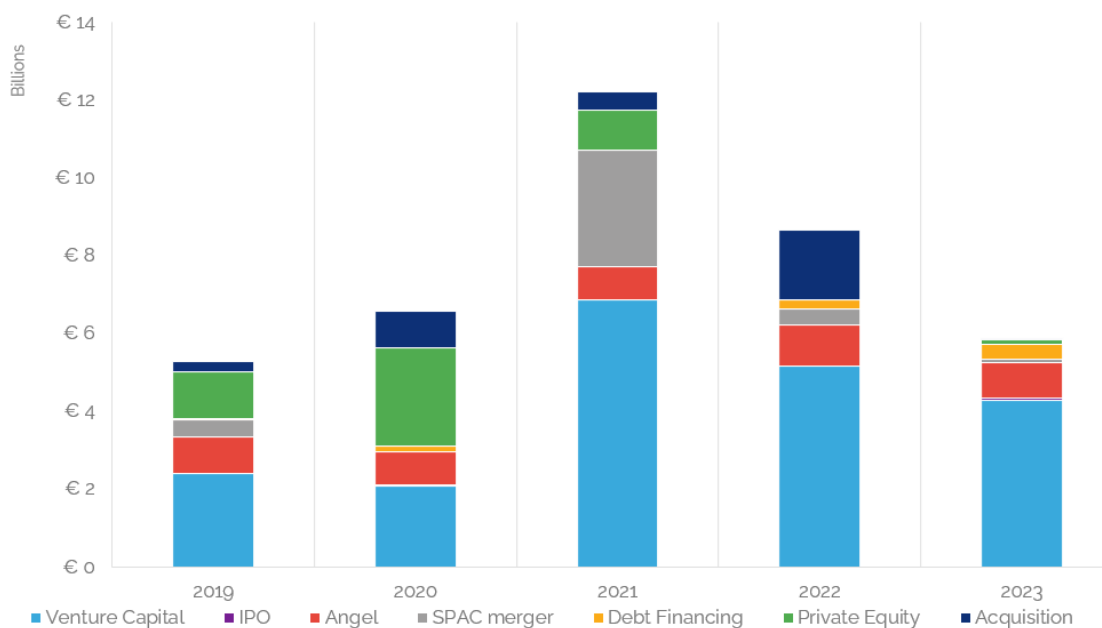


Figure 21: Investment type for global New Space ventures



Another interesting metric is to compare the share of the top five deals to the total investment size. What can be seen is that in the **USA the fundraising environment is more concentrated** in the top five deals, with the share **representing on average 70%** of the total raised since 2019. In **Europe**, this average is considerably lower and more stable, with the **top five deals only representing on average about 47% of the total since 2019**.

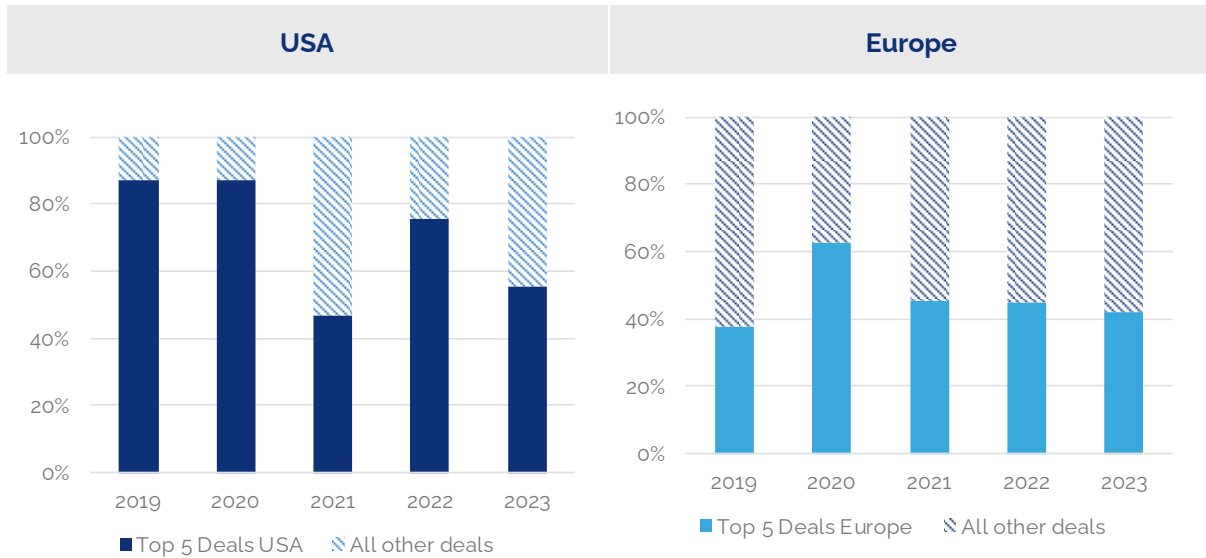


Figure 22: Weighting of top five deals - US vs Europe ¹⁰

3.2 Global distribution of investment

The USA has historically been the most active country for NewSpace investment and ventures. Since 2019, it experienced a significant growth period, particularly in 2021, going from €3.2 billion to €9 billion. Since then, **investment has decreased substantially returning to levels close to those observed in 2019**, driven in part by the reasons mentioned at the beginning of this chapter, **leading to a 0% CAGR**. Europe remains the second region attracting the most investment into New Space ventures. China has fluctuated but still presents an increase of 63% between 2019 and 2023.

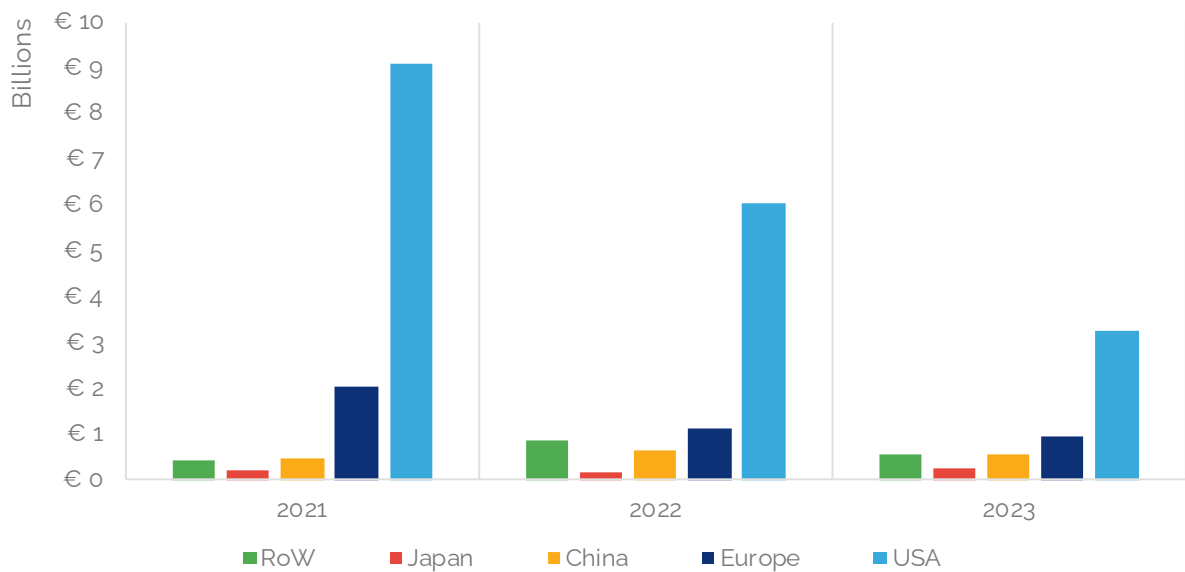


Figure 23: Investment volume per region

¹⁰ OneWeb is excluded from Europe in this graphic.

The biggest growth in investment over the past years has been seen throughout the rest of the world (RoW). Outside of the United States, European countries, China, and Japan, the total investment has increased from **€163 million in 2020 to €566 million in 2023** (predominantly originating from Canada, India, Israel, and Australia).

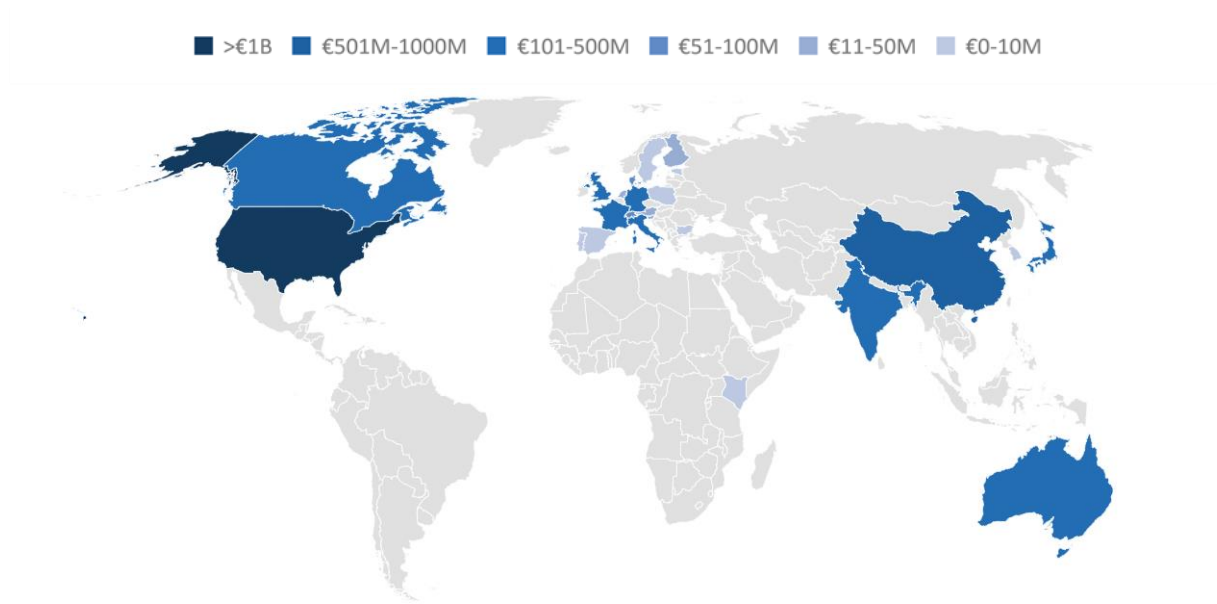


Figure 24: 2023 investment map

Europe has averaged 96 deals over the past 3 years compared to 114 for the USA. As such, **while there is only a 16% difference in deal number between the EU and the US, there is a 78% difference in investment volume** between both regions (Europe has averaged €1.4 billion over 3 years as compared to €6.3 billion for the USA).

The US saw 116 deals in 2023 for a total of €3.6 billion. This makes an average deal size of €31 million. In comparison, Europe saw a total of 83 deals totalling approx. €978 million, which makes an average deal size of €12 million.

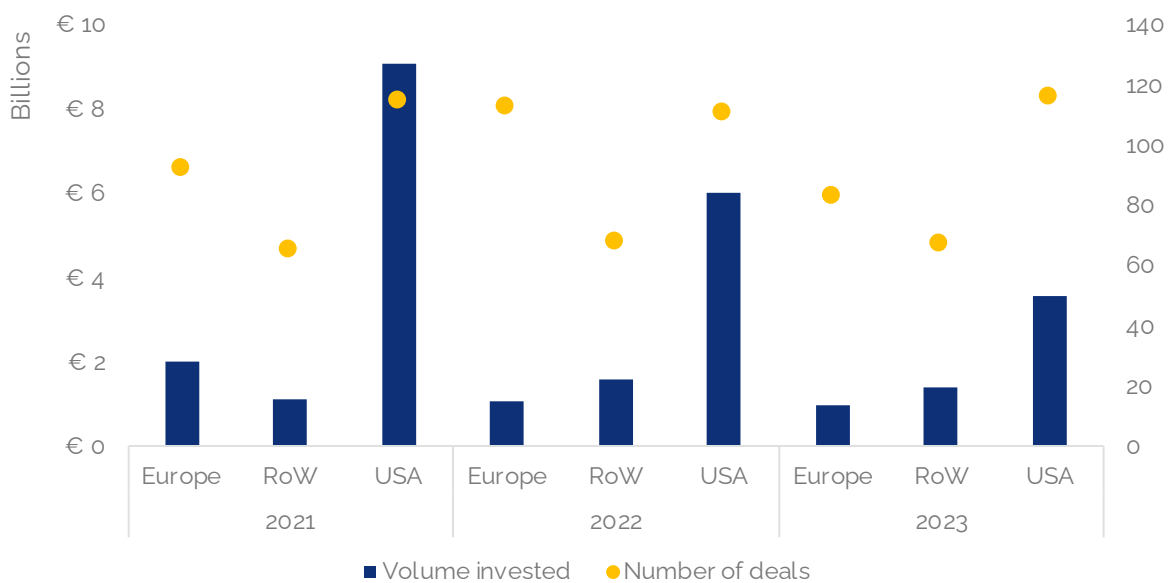


Figure 25: Volume and deals per region

4 SPECIAL FOCUS ON PRIVATE INVESTMENT IN CHINA¹¹

4.1 Macroeconomic Changes Alluding to New Funding Dynamics

The Chinese commercial space sector has seen remarkable growth over the past decade. **Since the opening of the sector in November 2014, more than ¥55B (€7.5B at today's exchange rates) has been invested in Chinese space companies.** Annual funding, which started at a mere €5M in 2014, reached a peak of €1.4B in 2020. In the following years, it fluctuated to then fall to levels similar to those of 2019 in 2023, at around €900M. **Preliminary investment data for 2024 (up to February) already surpassed the previous year's numbers, seemingly challenging the trend of declining investment.**

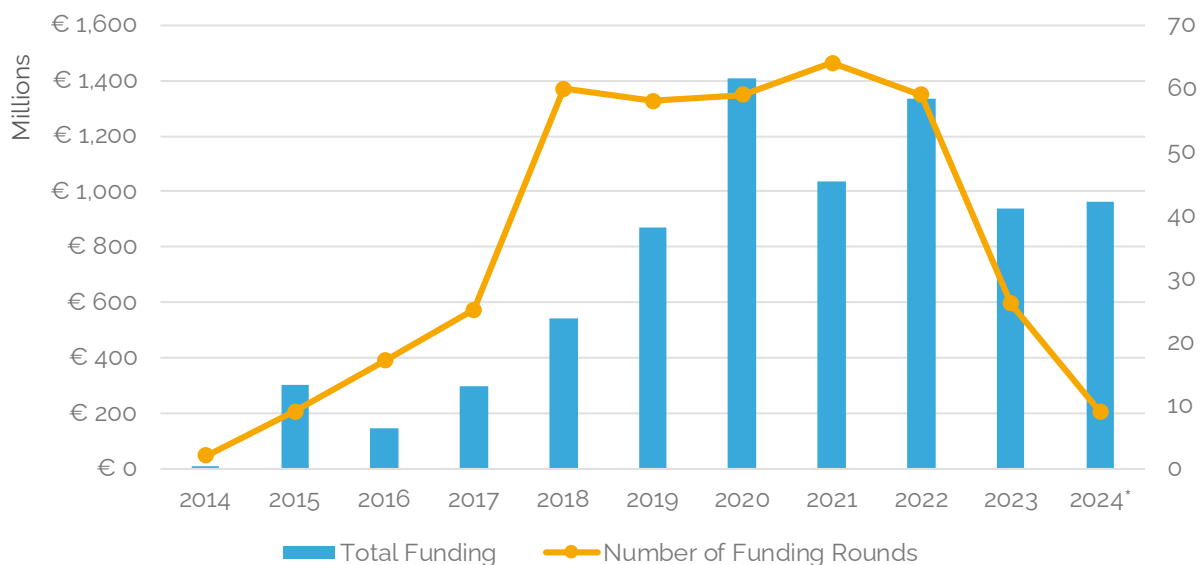


Figure 26: Investment value and number of deals per year 2014-2024 (Source: OGC). *2024 data is preliminary

But if we consider the number of funding rounds there was a sharp 56% year-on-year decline in 2023. Moreover, although 2024 will exceed 2023 levels of investment, it will likely be spread through a minute number of deals. The answer for this interesting trend may lie below the top-line numbers: a shift away from private capital and towards Central, Provincial, and City government funding.¹²

The government has always been an important source of funding for the Chinese commercial space sector. But a **constrained macroeconomic environment**, due to a confluence of events such as demographic challenges, real estate volatility, trade wars, debt burdens, and Covid lockdowns, **led to private investors' hesitance.** In turn, **the strategic importance of space pushed the public actors to step in and fill its funding gap**, with growing investment from a plethora of state financing mechanisms, such as provincial or city development funds, the Chinese Academy of Sciences, and major universities, among others.

¹¹ The data and analysis for this section were developed by **Orbital Gateway Consulting (OGC)** in cooperation with ESPI. OGC is the leading source for Chinese space industry data and analysis. Headquartered in Hong Kong, the team of Chinese-speaking analysts has been tracking the development of the Chinese space sector for nearly 10 years. Numbers and outcomes can differ from ESPI database/research.

¹² Examples of central government funding: National-level Chinese Academy of Sciences, national-level investment funds. Examples of provincial and city government funding: provincial and city investment funds.

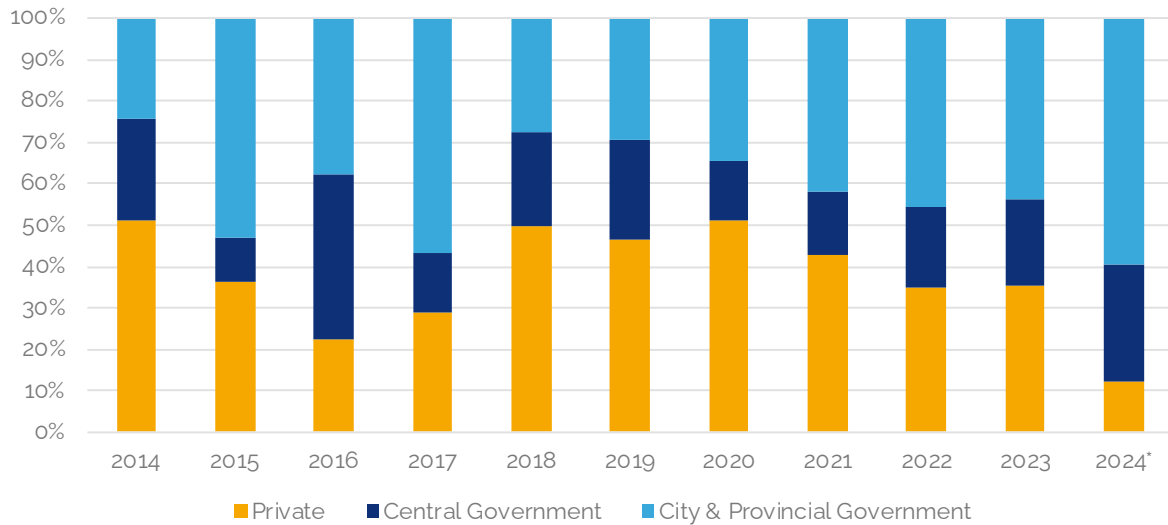


Figure 27: Chinese commercial Space Funding by Source, 2014-2024 (Source: OGC) *2024 data is preliminary

Beyond filling a potential funding gap that would have been left by private investors, it is also important to consider possible **second-order effects of the continued state support, in particular the crowding out of private investors**: now space companies are also requiring larger sums of money, at much higher valuations. A recent article highlighted the 100 most valuable Chinese commercial space companies, with China's 5 largest commercial launch companies by valuation (Space Pioneer, Galactic Energy, iSpace, CAS Space, and Landspace) all being valued at over ¥11B.¹³ For Chinese VCs that operate in an arguably even riskier environment compared to Western VCs, in addition to all the political, business, technological, and financial risks that these space companies pose as investments, they are now also expensive.

It is too early to tell what the long-term impact will be of having an incentive/financing structure that is more state-driven and tuned towards a winner-take-all dynamic, but **in the short-term, the impact has been undeniable: the rise of a growing cohort of startup champions**.

4.2 Emerging Champions

China's space sector is fast reaching the point of maturity where winners and losers will begin to make themselves known. **We can identify these champions across three dimensions: 1)** Level of funding raised, **2)** Inclusion in government policies or announcements, and **3)** Technological and commercial results.

Since 1 January 2023, Chinese commercial space companies excluding G60 (more on that below) have raised ~¥6B. Of this ¥6B, almost 75% was raised by just a handful of companies: Galactic Energy, CAS Space, Orienspace, MinoSpace, ADA Space, and Emosat, totalling 8 of the 30 funding rounds. The first 3 companies are among the leaders in China's commercial launch sector, while MinoSpace is a leading commercial satellite manufacturer ("Chinese version of SSTL"), ADA Space is a leading satcom operator, and Emosat is arguably China's leading commercial TT&C player. In addition to financial and technological success, these 6 companies have also received support from the government.

¹³ Taibo Think Tank releases the list of the top 100 Chinese commercial aerospace companies in 2023, Baidu, (link)



4.2.1 The Launch sector

Since 2014, five companies among more than 20 commercial launch startups (Galactic Energy, CAS Space, Orienspace, Landspace, Expace), have raised €1.6 billion in funding, meaning 54% of all investment in this segment of the space value chain. In addition to their ability to accrue most of the funding, these companies have also often had the political backing of the Chinese public institutions. In turn, the funding and political/regulatory support have helped these companies gain an advantage in technological and commercial success.

For example, Galactic Energy completed 9 successful launches of their Ceres-1 solid-fuelled rocket between 2021-2023, with only one failure in that timeframe. These launches sent 34 payloads into orbit, for commercial customers, universities, and government entities. This success has aided the company in fundraising, with Galactic Energy raising ¥1.1B (€150 million) at the end of 2023, with 3 of the 4 financiers in the round being city governments (Ziyang, Langfang, and Bengbu)¹⁴.

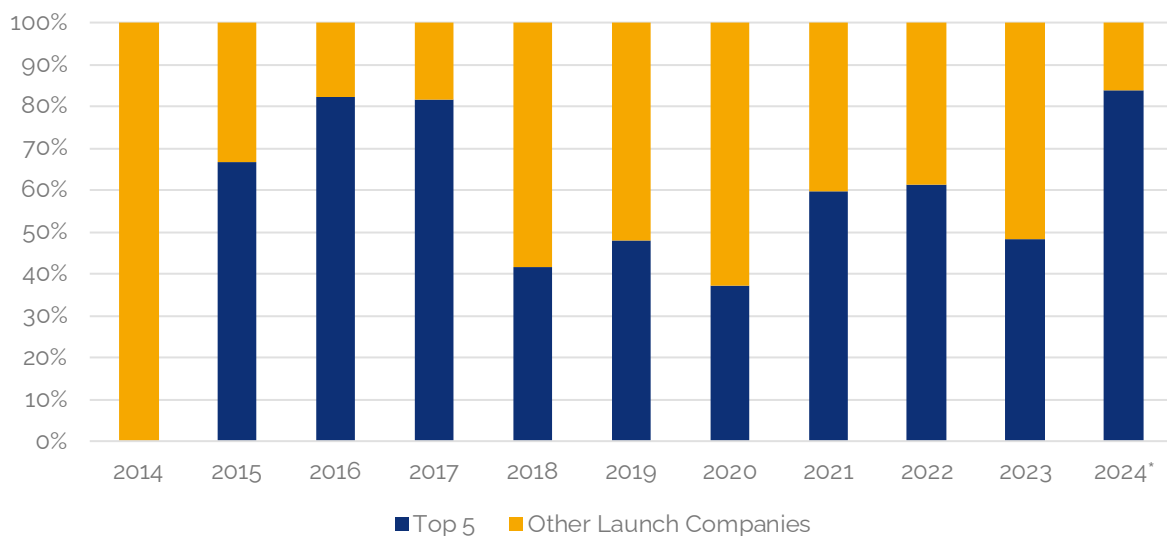


Figure 28: Share of investment raised by the top 5 launch companies versus others (Source: OGO) *2024 data is preliminary

CAS Space also raised a major round in 2023, totalling ¥600 million a few months after the successful launch of their ZK-1A rocket. Importantly, its backers were mostly from the Chinese Academy of Sciences and the Guangzhou Government and much of the funding was earmarked to be poured into the company's Nansha (Guangzhou) rocket industrial base an example of a city government (Guangzhou) investing money into a commercial venture that will reinvest in the city. Similarly, Space Pioneer raised some ¥800 million during several Q2-Q4 2023 rounds following the successful debut of their Tianlong-2 rocket, partly from Zhangjiagang (city) under a similar arrangement.¹⁵

4.2.2 Satellite Communication

Turning our attention to the satcom sector, China Satcom (the state-owned GEO operator) and China SatNet (the state-owned aspiring NGSO operator) remain far the biggest players, but of the plethora of private-sector efforts that have emerged during the past decade of deregulation, only a few have amassed the needed support.

¹⁴ Galaxy Power Aerospace completed C and C+ rounds of 1.1 billion yuan in financing, Weixin, (link)

¹⁵ Tianbing Technology completed hundreds of millions of yuan in C+ round of financing, Weixin (link)



Shanghai Tsingshen Science & Technology is a startup founded in October 2018 with roots in the Chinese Academy of Sciences, Tsinghua University, and the Shanghai Government. The company plans to launch the "Smart SkyNet", a MEO communications constellation very similar to the first generation of SES's O3b. The amount of funding this company has raised is not public, with most reports being vague, only mentioning "strategic investments" of undisclosed amounts. Still, recently Tsingshen raised interest over the past 18 months, having received a pledge of ¥2.5 billion in funding from Tsinghua University in late 2022, and having had the Smart SkyNet constellation named in Shanghai Municipal Development policies in 2023.¹⁶

Early-stage Reform in the Telecoms and Internet Sector

Recently, a changing political environment in China has led to two separate but related trends: **1) early-stage reform in the telecoms and internet sector, and 2) broadening of the field for China's large NGSO broadband constellation.** Before 2023, the official line in China was that China SatNet, the state-owned enterprise established in April 2021, was going to be the operator of the Guowang (国网 or National Network) constellation, which was itself going to be China's only large NGSO broadband constellation. However, a **document issued by the Chinese government in late 2023, suggests a more open approach to private players¹.**

Soon after its release, the NGSO constellation G60 received major financial and regulatory support from the Shanghai Government, attracting around €1B in funding in just 2 months across a ¥6.7 billion (€875 million) round announced in February 2024¹ by Shanghai Spacecom Satellite Technology (SSST, the G60 constellation operator) and a ¥600 million (€78 million) round announced in December 2023 by Gesi Satellite, the G60 constellation manufacturer. This is **more than all the publicly disclosed Chinese Satcom funding raised to date.** While the Chinese funding ecosystem has been largely dominated by launch companies, and satcom had limited investment (despite some important private satcom ventures), **this potential change in political and regulatory environment has already made a great impact in the investment dynamics, as seen in 2024:**

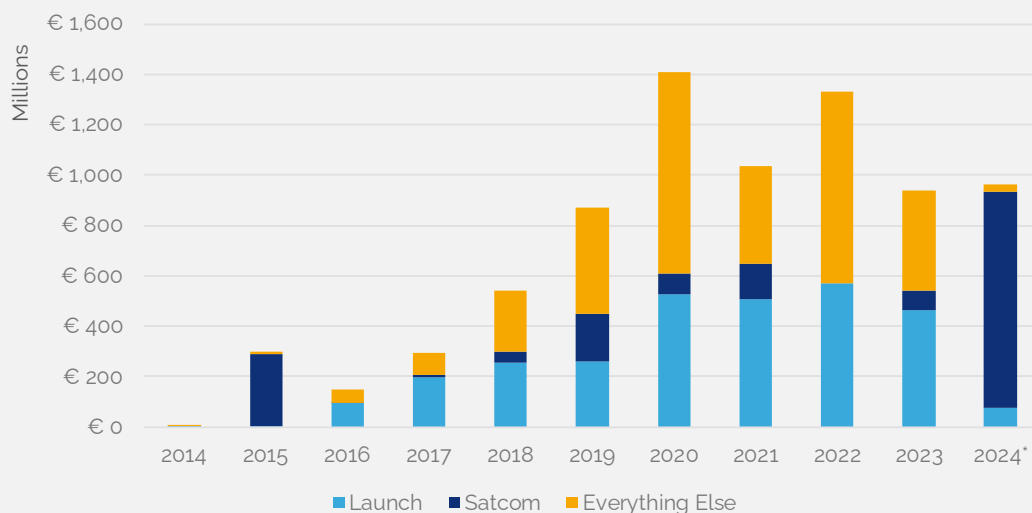


Figure 29: Investment raised by different segments in the Chinese NewSpace sector 2014-2024* (Source: OGC)

¹ "Opinions on Innovating the Management of the Information and Communications Industry to Optimize the Business Environment", Xinhuanet, (link)

¹⁶ Announcement on Competitive Consultation for Tsinghua University Space Network Experimental Test Platform Procurement Project, Chinese Ministry of Finance (link); Notice of the Shanghai Municipal People's Government on Issuing the "Action Plan for Further Promoting New Infrastructure Construction in Shanghai (2023-2026)", Shanghai Municipal People's Government (link).



Again, **support from public institutions is key, and in this case, the regulatory support from the Shanghai Government positions Tsingshen as one of the main contenders for leading commercial satcom projects.** The company plans to launch 8 satellites to MEO by 2026 with a total of 200 Gbps of throughput.

Similarly, we have seen continued progress from **GeeSpace**, the space subsidiary of automotive giant Geely, on their integrated satellite navigation/communications constellation, with the company's satellite factory in Taizhou having built a batch of 11 satellites that were launched in February 2024, joining 9 that were launched at EOY 2022. This is another company where funding levels are not publicly disclosed, but **the deployment of its constellation is only possible thanks to major investment from its parent company Geely, and support from the Taizhou city government.**

On narrowband connectivity, only one of the handful of companies that planned such constellations have so far succeeded. **ADASpace** has launched 17 of the 38 satellites in their *Xingshidai* IoT constellation, while also developing a variety of applications with different end users. These landmarks in the deployment of their technology have led to more funding, with ADASpace completing a "more than **¥500 million funding round in late 2023, with at least 3 and possibly 4 of the 6 financiers being linked to city governments.**"¹⁷

On the other hand, several other, commercial satcom projects have not made the same level of progress in this segment of the space value chain, such as CCT Satcom (GEO comms project), Commsat (NGSO comms project), and Beijing Star Time (GEO comms project), and Galaxy Space.

4.2.3 Other Segments

Other verticals have also seen champions emerge, while their competitors start to fall behind. For example, **CGSTL launched almost 60% of all remote sensing satellites launched by private space companies in China since 2014**, as part of their Jilin-1 constellation. At the same time, the remote sensing startup Qiansheng Exploration ceased operations, while Space-OK was acquired by GeeSpace, in an example of consolidation.

Leading commercial TT&C company Emposat has expanded its global network of ground stations to countries ranging from Azerbaijan to Argentina and has achieved an impressive level of success in the commercial market, having provided TT&C services to hundreds of commercial satellites. **The company received considerable initial support from the Beijing Government via a Zhongguancun investment vehicle.** More recently, Emposat's subsidiary and on-orbit servicing company Sanyuan Space completed a "Pre-A" round of funding with money primarily coming from a municipal government fund of the city of Taicang¹⁸.

4.3 What Does the Future Hold: NewSpace with Chinese Characteristics

Ultimately, across several verticals, China is seeing one or more champions emerge, with these champions getting access to financing, technology, and other support from state actors.

Together, out of 152 companies in Orbital Consulting's Investment Database, **the 10 identified champions concentrate more than one-third (34%) of all funding between 2014 and 2023.** If we take into account preliminary data for 2024 the figure rises to a remarkable 42%.

¹⁷ Nationstar Aerospace completed Series C financing of over 500 million yuan, Weixin (link)

¹⁸ Aerospace Yuxing subsidiary "Miyuan Aerospace" completed tens of millions of yuan in Pre-A round of financing, Weixin (link)

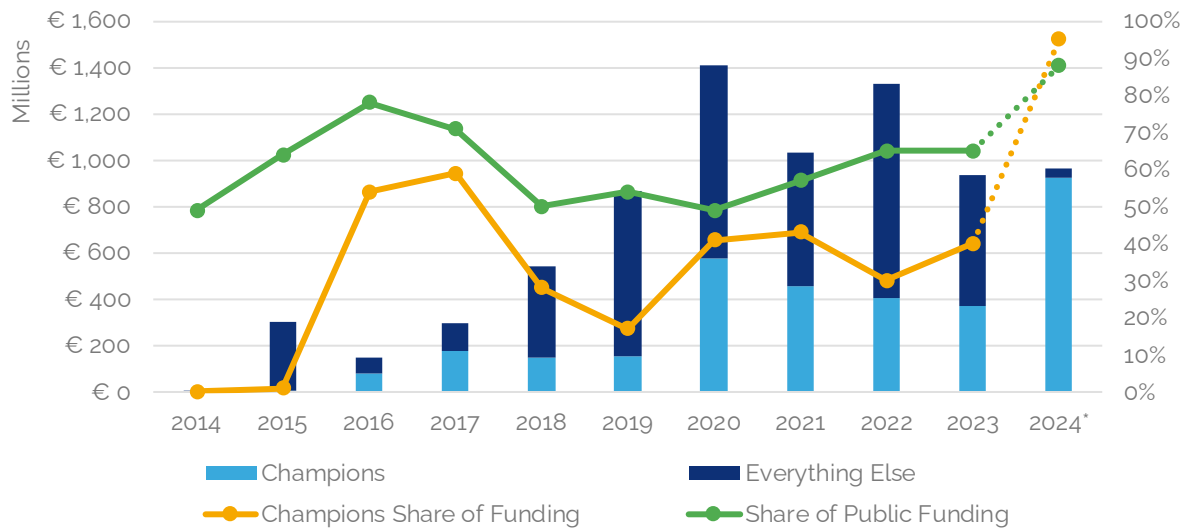


Figure 30: Comparison of the investment raised by champion companies and the share of public investment per year 2014-2024* (Source: OGC). *2024 data is preliminary

Moving forward, **the leading Chinese commercial space companies are going to be the ones most closely aligned with local/provincial governments, the Chinese Academy of Sciences, and other government institutions.** Indeed, since 2020 champion companies have concentrated an average of approx. 40% of funding since 2020, and in parallel, we also see an increase in the overall share of public funding.¹⁹ This means that not only the Chinese public investment is stepping up to fill in the overall gap left by the private sector, but it **is also keeping the champions with a stable share of total investment. From 2024 onwards, with the potential opening of the satcom market (see box above), this dynamic could be further ingrained.**

But **funding is not all that makes a champion**, as explored above these companies are often selected by local governments for important development projects and are part of wider investments directed towards the region's economic growth and modernisation, gaining an **impressive technological foundation, and a growing domestic market for their services.**

In the next couple of years, we can expect to see these projects expand abroad due in no small part to increased funding. The approx. €1 billion in funding raised for the G60 constellation in early 2024 will be enough to deploy a respectably-sized global NGSO broadband constellation. Various Chinese launch firms will be scaling up capacity, with a growing but finite domestic market to fill their launch vehicles.

The opening of the Satcom market may lead to the resurging of private investment in the Chinese commercial space sector, but **in the meantime, we will continue to see public actors as the biggest supporters of large space projects, in what we might call NewSpace with Chinese characteristics.**

¹⁹ Excluding preliminary data of 2024.

5 SPECIAL FOCUS ON PRIVATE INVESTMENT IN AFRICA²⁰

5.1 African Space Economy

Space technology is becoming increasingly important for many African nations. The African space economy has been **growing at rates exceeding Africa's GDP growth rate**. It is emerging as a strategic tool to boost national economies and support the achievement of the Sustainable Development Goals across the continent. According to Space in Africa's estimates, the African space economy was valued at **\$19.5B** in revenue in 2021 and is expected to grow by 16% to **\$22.6B** by 2026. While the bulk of this aggregate revenue comes from the more established GNSS, satellite TV, and fixed and mobile satellite services, African NewSpace companies are emerging to offer satellite broadband services, earth observation applications, and satellite subsystem/component manufacturing.

5.2 Overview of the African NewSpace Sector

Space in Africa's NewSpace Database shows that **391 African NewSpace companies have been founded since 2000**. There is a sustained upward trend in the number of newly established companies up until its peak in 2015. From 2015 to 2020 the number fluctuated, but overall revealing a tendency to decrease in activity, and particularly **since the outbreak of COVID-19, the African NewSpace sector saw a considerable decline in the number of companies being founded**, which persists to this day. **Still, almost 60% of the companies were founded in the last decade**, driven by global interest in commercial space ventures and rising demand for satellite services in Africa.

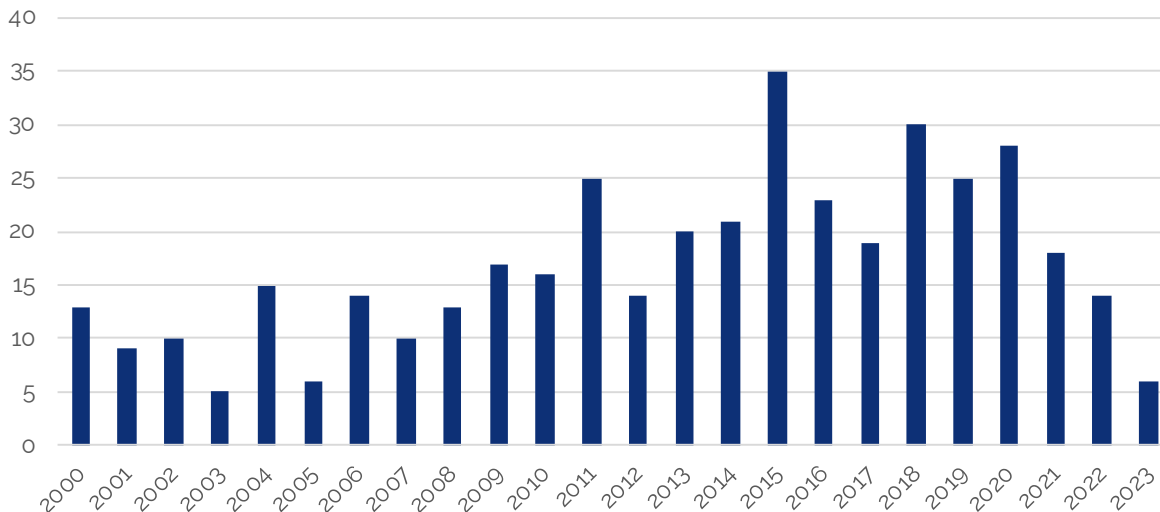


Figure 31: Founding period of NewSpace companies (Source: Space in Africa)

These companies are spread across **37 African countries**. **South Africa** was the country that saw most NewSpace firms being founded in Africa, comprising 25% of the total, while **Kenya** and **Nigeria** each account for 14% and 13%, respectively. Together, these countries comprise **more than half of the NewSpace companies founded in Africa since 2000**.

²⁰ The data and analysis for this section were developed by **Space in Africa** in cooperation with ESPI. Space in Africa is the market leader in market research and consulting focused on the African Space Industry. It offers a range of market reports and data products and provides go-to-market strategy and consulting for local and foreign companies looking for opportunities in the African space industry. Based in Estonia and Lagos, Nigeria, with analysts and consultants across the subregions in Africa, Space in Africa hosts the NewSpace Africa Conference—the continent's largest space-theme event. Numbers and outcomes can differ from ESPI database/research.

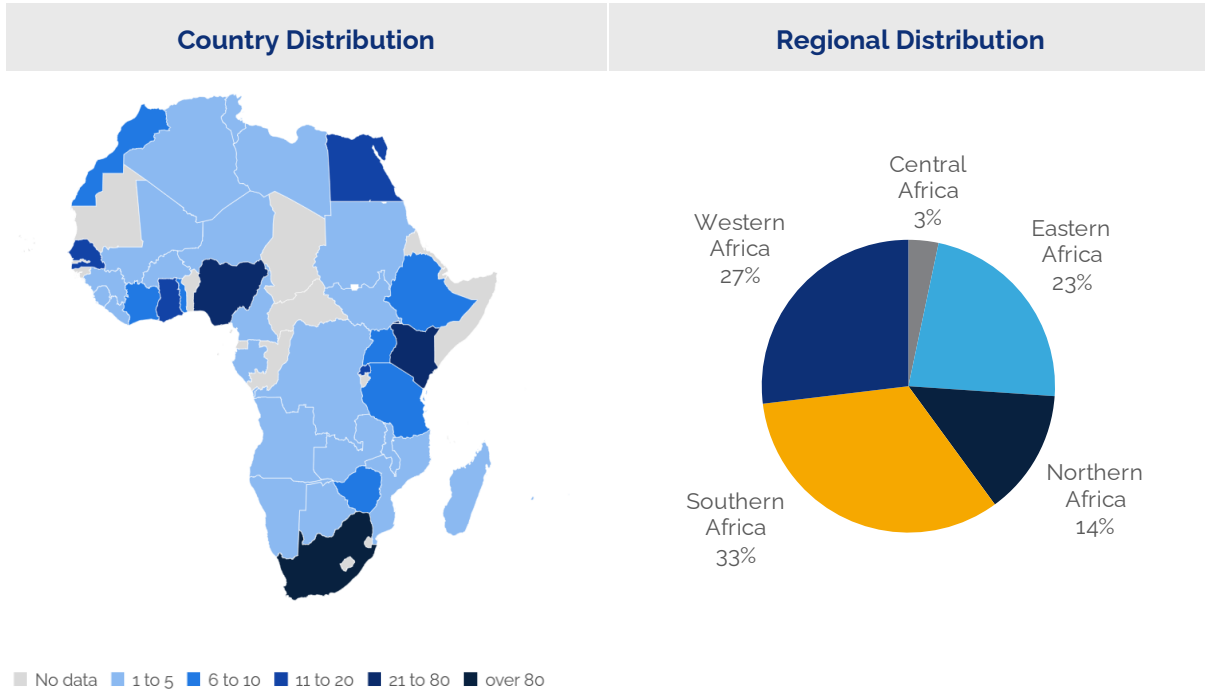


Figure 32: Geographical distribution of African NewSpace companies. (Source: Space in Africa)

In terms of regional distribution, **60% of the companies were established in Southern Africa and Western Africa**. Almost a quarter of the companies were founded in Eastern Africa, while 14% were established in Northern Africa. Central Africa is the outlier, with just 3% of the companies founded in the region.

5.2.1 African NewSpace Industry’s Position in the Space Value Chain

Looking at the wider space value chain, **downstream companies account for 93%** of the total companies in Africa, while the remaining **7% are upstream companies**. Based on their operational focus, the 391 NewSpace companies in Space in Africa’s database can be categorised into **six (6) broad market segments**. **Earth observation solution providers constitute almost 60% of listed companies in Space in Africa’s database**. The second market segment with most companies is satellite communications with 96 companies (25%).

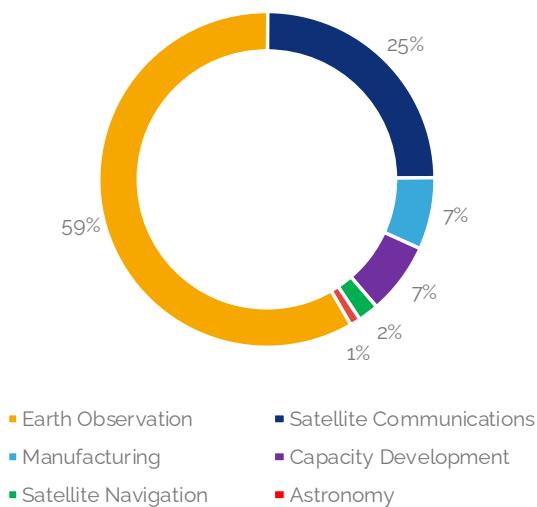


Figure 33: Distribution of African NewSpace in the space value chain. (Source: Space in Africa)

End-users for African NewSpace companies vary in geographic scope, with 46% of the companies serving end-users locally, around 18% already selling to customers within their regional bloc, and 19% providing service to customers across the continent. 17% are selling solutions to global customers. Generally speaking, African NewSpace startups have a broader international addressable market without major geopolitical restrictions in America, Asia, and Europe, but in particular, **manufacturing companies are more prone to export their products partly due to the lack of a robust value chain for the uptake of the subsystems for projects in Africa**.

5.3 Overview of investment dynamics

The majority (79%) of African NewSpace companies are bootstrapping. The African space ecosystem remains predominantly engaged in projects to solve fundamental socio-economic challenges, where national and regional government entities, international organisations, and NGOs serve as primary customers, allowing most startups to bootstrap their operations. Moreover, market fragmentation and lack of many success stories dissuade investors from investing in NewSpace in Africa, compared to other industries in the recent technology investment boom on the continent.

Nevertheless, several companies have secured investments over the past decade. Accordingly, **since 2015 funding amounts raised by African NewSpace startups reached \$184 million over 35 investment rounds** as of February 2024. **Interestingly, the increase in funding in the last few years is at odds with the number of founded companies.**

Overall, the investment landscape between 2015 and February 2024 is characterised by notable fluctuations in funding volume over time, with investment surging in 2021, marking a significant inflection point. Accordingly, **84% of all investments were raised since 2021, with 2023 being the year with the second-highest investment volume, accounting for \$49 million (27% of the total).** The number of deals, while also fluctuating considerably over the analysis period, has also generally increased.

Importantly, **only 3% of the investments were made by African investors,** while the remaining 95% were raised through foreign investors.

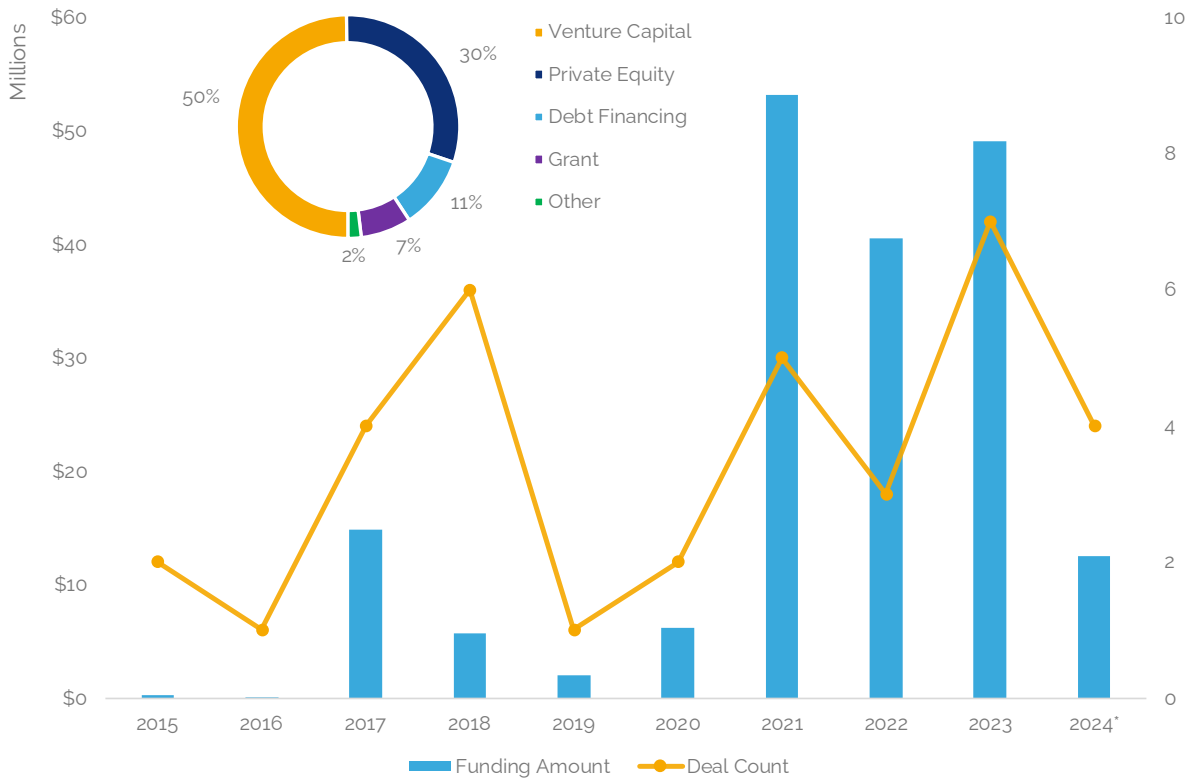


Figure 34: Annual investments (deal count) by year and total investment by funding type. (Source: Space in Africa) *2024 data is preliminary

Venture capital accounted for \$92 million, representing half of the total investment raised by African NewSpace companies. In turn, **private equity represents 30% of all funding, at \$56 million,** with Africa Mobile Networks (AMN) \$36 million round being one of the major investment



rounds in this funding type. The round was led by African private equity firm Metier, with participants such as CDC Group Plc (the development finance institution owned by the UK government), DEG (Germany's development finance institution), and Proparco (the private sector arm of the French development agency). The funds will be used to improve connectivity in rural African communities.

Debt financing was another major source of funding, totaling \$19.5 million (11%), raised by Apollo Agriculture over two deals to continue expanding across Africa to enhance food security and build climate resilience among small-scale farmers and rural communities in Sub-Saharan Africa and beyond. Other funding sources include grants (\$13.5 million), trade credit (\$2 million), and angel investments (\$1.5 million)

5.3.1 Distribution in the value chain

Out of the 35 investments documented in the last decade, downstream companies received the majority in volume and value. Thirteen companies providing downstream applications and services raised \$156.2M across 25 investment rounds, whereas seven upstream companies raised \$28M cumulatively, representing only 15% of the total investment.

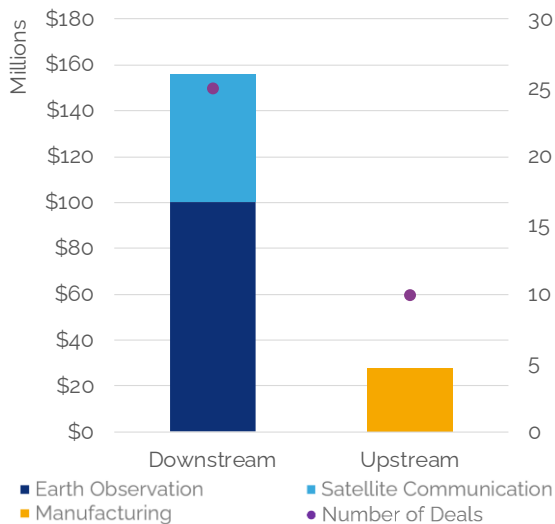


Figure 35: Distribution of funding based on industry segment (2015 - Feb 2024). (Source: Space in Africa)

Cubespace ADCS's \$2.5M funding round is an example of an upstream company that has received VC investment. On the other end, **Apollo Agriculture secured \$67.5M** across five investment rounds within the last four years, while **Africa Mobile Networks (AMN) raised \$56M** across two private equity investment rounds in the same timeframe to extend connectivity to the most marginalised communities in Africa. **Aerobotics raised \$25 million** across four rounds between 2017 and 2021. **Combined, these three companies garnered 81% of the total investment.**

Though funding levels remain modest compared to other regions, targeted capital has allowed companies to develop new products and services, scale operations, and pursue ambitious growth plans. Continued funding will be critical for the sector to boost momentum and realise its potential.



6 SPACE VENTURE 2023 TAKEAWAYS

Investment in Europe

- **Slight decline of investment in Europe**, with €942 million distributed across 78 deals invested in European space startups, €67 million less than in 2022 (7%).
- **Massive growth since 2014 (CAGR-55%)** in Europe, with annual investment growing from €18 million to €942 million in just 9 years.
- **Biggest investment round for a European startup in 2023**: Isar Aerospace (€155 million) Series C raised to fund its Spectrum launch vehicle development.
- **Top five deals in Europe reached** €411 million in 2023, or 43% of the total raised by European space startups.
- **Venture Capital accounts for the largest share of investment value**, with 82% of investment originating from VCs.

Investment Worldwide

- **Global investment into space ventures decreased** from €8.8 billion in 2022 to €6 billion in 2023. Mirroring broader trends in global VC markets as a consequence of a changing macroeconomic and geopolitical environment.
- **Venture Capital accounts for the largest share of financing worldwide** with 73% of the total or for approx. a total of €4.2 billion.
- **The debt financing globally** reached a record €387 million in 2023, underlining its sustained growth as an ever more important financing mechanism for the sector.
- **The U.S. is the region attracting most investments** (followed by Europe and China), but is under a significant slowdown in investment, resulting in a **0% CAGR since 2019**.
- **The rest of the World (RoW)** has seen a growth in investments of **247%** over the past three years. This is a trend that is expected to continue as more countries pursue their increasingly ambitious national space strategies.

Investment in China

- **Since 2014, Chinese companies have raised approx.** €7.5 billion over 150 companies.
- **10 companies in China** have attracted 34% of investment.
- **Public funding** (particularly by local governments) has been instrumental in supporting the commercial space sector in China, **comprising an avg. 40% of funding since 2020**.

Investment in Africa

- African startups raised around **184 million since 2015**, 84% of which was raised since 2021.
- **VC represents 50% of funding**, while PE represents 30%.
- Still, **79%** of African NewSpace companies are **bootstrapping**.



ANNEXES

Annex A – ESPI Space Investment Database

Dataset and sources

The assessment of investment statistics provided in this report is based on information collected by ESPI in a proprietary database. The ESPI Space Investment Database includes all deals from 2014-2023. The dataset includes publicly available data on announced operations and deals and information is collected by screening a high number of sources including investment firms', incubators' and accelerators' portfolios, articles and specialized news outlets or specialized sources such as CrunchBase. Furthermore, due diligence was made to appropriately filter all press and governmental releases as well as events. Cross-checking was systematically performed.

Perimeter and definitions

This study focuses on European space startups and aimed to collect data on investment received by these companies and to gather views of these companies on their business, the environment in which they evolve and their expectations from public actors. The following definitions and categories were applied to delineate the perimeter of the analysis.

European space startups

- **Startup:** A startup is defined in Europe as a company younger than 10 years, whose business tends to feature innovative concepts and models and who has not yet reached business maturity (defined according to the business stage: Public Offering, annual turnover or a number of employees). For the purpose of this study and given the usually longer timeframe required in the space sector to reach business maturity (as compared to other industrial sectors), ESPI included companies founded after the year 2000. Business maturity (end of the startup stage) is considered achieved if the company meets one of the following criteria (adapted from startup and SME definitions by the European Commission):
 - Acquisition or Public Offering: the company has been acquired or listed on a stock market.
 - Turnover: the annual turnover of the company exceeds €50 million, or the annual balance sheet total exceeds €43 million.
 - Number of employees: the total number of employees exceeds 250.
- **Space company:** A company is considered a space company if the main business of the company (in revenue share) is part of the space value chain. For this definition, the study followed the space market segmentation provided by Seraphim's Spacetechnology Market Map 2019, which divides space activities into three segments:
 - Upstream: Build, Launch, Satellites;
 - Downstream: Downlink, Analyse, Store, Product;
 - Beyond Earth: Space Exploration, Space Resources, Space Logistics, Space Research.
- **European company:** A company was considered European when the headquarters of the business organization are based in Europe (EU Member States + ESA Member States), or if a majority of its business operations are conducted in Europe, a feature that implies, for instance,



the eligibility for EU funds as those provided by the Horizon2020 program. Some exceptions exist for companies with multiple headquarters.

In a number of cases, the classification of a company as a European space startup required an arbitration because of the business setup (e.g. multiple headquarters addressing different regional markets), the situation of the company (e.g. dormant company founded before 2000 but with a net business acceleration after 2000 and following a startup behaviour) or the nature of business (e.g. space is part of the products and services portfolio but not a core market).

For example, the study partially includes, or totally excludes, deals involving companies that reached business maturity during the period considered (2014-2018). This is for example the case of O3b Networks (today part of SES as SES Networks): the company is counted for a single investment in 2014 despite additional investments in 2016 and 2017. According to the definition adopted for this study, the company reached business maturity in 2015, because of annual revenues exceeding by far €50 million. Comparably, companies like GOMSpace and AAC Microtec were excluded after 2016, as they both started to be publicly traded and their business structure did not match anymore a startup model. The British company Reaction Engines was included despite its age, as the company is still actively trying to develop the product for which it was founded, the SABRE engine.

New Space perimeter for global statistics

In order to provide comparable metrics with already established sources such as BryceTech and Seraphim capital, ESPI uses a broader "New Space" perimeter for global statistics that features a less stringent definition of "startups" and includes companies such as SpaceX or OneWeb which already reached maturity according to ESPI definition.

To ensure coherence with existing authoritative studies, ESPI selected the categories used in Bryce's Startup Space report series to classify sources and types of investment.

Investor categories

- **Angel Investors:** individuals or families (to include family offices) that have accumulated a high level of wealth and seek potentially high returns by investing in ventures during their early stages. Such investors may also operate with venture capital firms or other so-called angels. They will typically invest via straight equity, ranging in value from \$50,000 to over \$1,000,000. There is also a class of "super angels", who work in deals of \$100 million or more (Jeff Bezos, as one example).
- **Venture Capital Firms:** VC firms represent groups of investors that invest in startup, early-stage, and growth companies with high growth potential, and accept a significant degree of risk. The trade of risk for potentially high returns results in a high failure rate. Their investment form is equity, typically preferred stock, and comes in a series of rounds, traditionally Series A, B, C, etc.
- **Banks:** Banks are financial institutions that can support investment through a variety of instruments including, in particular but not only, loans and debt financing.
- **Private Equity Firms:** Private equity firms or groups are formed by investors to directly invest in companies. They typically invest in established companies, rather than startups, through large transactions and often acquire an entire company or a group of related companies that can merge.
- **Corporations:** Corporations have different methods of engaging in investment. They frequently provide the funding necessary to bring space-based programs to initial operating capability, as well as to sustain ongoing programs; they can also fund ventures, typically via straight equity, but also debt, and in the latter case with the option to convert to equity; and they also



sometimes act via a corporate venture fund. Lastly, corporations may likewise acquire firms, including startup space ventures, of which there have been several examples in recent years.

- **Accelerators & Incubators:** Although they are ultimately distinct types of actors, accelerators and incubators are similar in several core ways. Both aim to support startups, offer mentoring in developing their business, and both offer means to attract investment. Broadly concerning their differences, "accelerators 'accelerate' growth of an existing company, while incubators 'incubate' disruptive ideas with the hope of building out a business model and company".

Investment categories

- **Acquisition:** A situation whereby one company purchases most or all of another company's shares in order to take control. An acquisition occurs when a buying company obtains more than 50% ownership in a target company.
- **Debt Financing:** Process of raising money by selling debt instruments to individuals and/or institutional investors (e.g. banks). In return for lending the money, the individuals or institutions become creditors and receive a promise that the principal and interest on the debt will be repaid.
- **Private Equity:** Investment consisting of capital that is not listed on a public exchange. Private equity is composed of funds and investors that directly invest in private companies.
- **Public Offering:** Process of offering shares in a private corporation to the public. The first time, the operation is called an Initial Public Offering (IPO).
- **Venture Capital:** Funds invested by VC firms, usually with medium-term stakes, for high-profit, high-risk activities.

Space value chain segmentation

The space value chain can be divided into segments. ESPI selected the Seraphim SpaceTech Ecosystem Market Map (available at: <https://seraphimcapital.co.uk/insight/news-insights/introducing-seraphim-spacetechn-market-map>) to organize startups business along the value chain.

The upstream part of the space value chain includes all business activities related to the development, production, deployment and operation of space systems. This includes:

- **Build:** development and manufacturing of space systems (incl. sub-systems, equipment, components and materials) and/or provision of related software and engineering services;
- **Launch:** development and manufacturing of launch systems and/or provision of launch services;
- **Data:** operation of space systems to lease or sell satellite capacity data.

The downstream part of the space value chain includes all business activities related to the exploitation of space systems' capabilities or data to provide space-enabled products and services to end users:

- **Downlink:** development and manufacturing of the ground support infrastructure and services required to exploit a space system (e.g. relay systems, communications, ground terminals, cryptography);
- **Store:** provision of solutions for satellite data storage and processing;
- **Analyse:** provision of value-adding solutions for satellite capabilities and data exploitation (e.g. big data analytics, machine learning and artificial intelligence, algorithms);
- **Product:** provision of space-enabled products to end-users (e.g. mapping & 3D, data platforms, location and tracking, insight and monitoring).

Seraphim also include, in a separate segment, companies whose business involve activities beyond Earth orbit including services and products for space exploration, space resources, space logistics or space research.

Annex B – About New Space

The global landscape of space activities is undergoing profound changes. Whereas the vast majority of space activities are still led by governments, with private industries acting as suppliers for public programmes and relying massively on traditional sources of public funding, a disruptive and commercially driven ecosystem has emerged over the last decade marked by ambitious private endeavours featuring innovative schemes and business models. In this new ecosystem, public actors are eager to explore new ways to conduct space programmes and to foster the development of the commercial space sector. In turn, private actors also seek to play a more prominent role, leveraging public funding and private investment to develop new business models and address new markets.

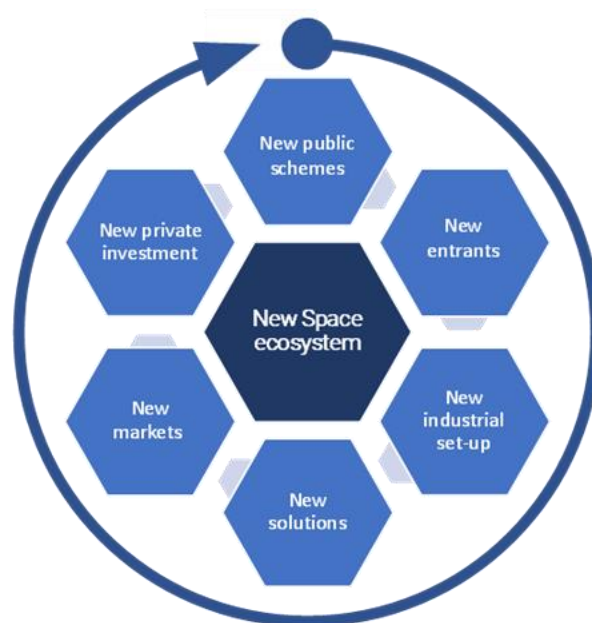


Figure 36: The New Space ecosystem

The underlying dynamics of this new ecosystem, usually referred to as New Space, feature a wide range of interrelated trends:

-New public schemes for space programmes, procurement and support to innovation involving new arrangements with the private sector and the development of new public instruments.

-New entrants including emerging spacefaring nations and new business ventures from space companies and startups as well as from non-space companies seeking to enter the space sector.

-New solutions including new products and services but also disruptive value propositions such as integrated solutions, lower prices, reduced lead times, lower complexity, and better flexibility.

-New markets under exploration or development in both the upstream and downstream segments of the space value chain.



-New industrial set-ups and implementation of new industrial methods and processes for the development and production of space systems as part of innovative business models.

-New private investment from various sources and involving multiple financial instruments (e.g., venture capital, private equity, loans, prizes, crowdfunding...).



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