

Alba & co

Exploring new horizons Together

Alba & Co^{smos} 9

November 2024

Strictly private & confidential



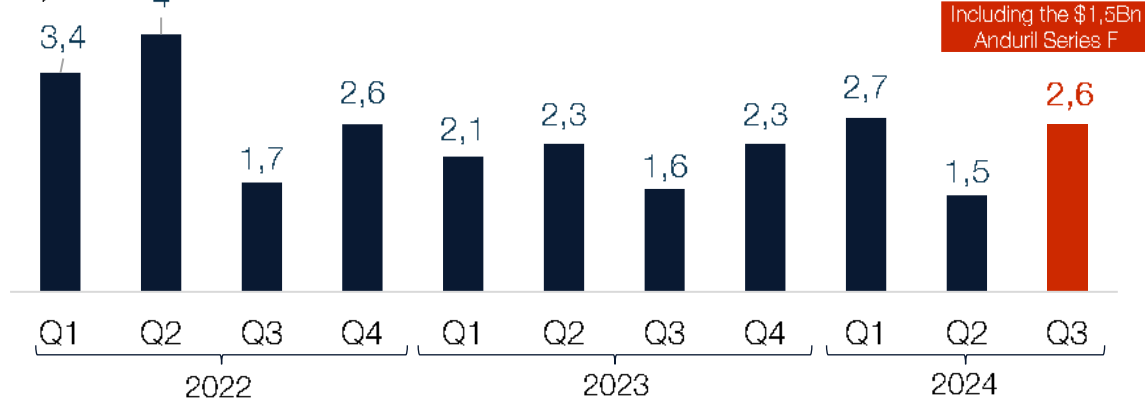
In the past few months, the Space industry has gone through ups and downs, with the successful launch of Ariane 6 and successful landing of Starship versus the stop of Starliner or the final flight of VEGA. This edition dives into the recent investments in the space sector, the space industrials' restructuration projects, and Europe's plans for secure telecommunications. Let's launch right into it.

1. A look back on global space investments at Q3 2024: D-Orbit in the top 10
2. European space funding and M&A rounds from June to October 2024
3. Thunderclouds for the industrials: Boeing, Thales Alenia Space and Airbus rethink their space activities
4. To the Moon: Focus on ESA's new LUNA test facility in Cologne
5. IRIS² : the sovereign constellation to give Europe sovereign telecommunications capacities
6. French news: updates on french space companies
7. Fast facts: what's up with space

Space investments in Q3 2024 reached \$2.6Bn globally, led by US companies, with only one European actor in the top 10: D-Orbit











GLOBAL SPACE TECH FUNDING THROUGHOUT THE YEARS AND Q3 2024 FUNDING

Space Tech Funding (Global)
(\$Bn)



















Q3 2024 space funding was mostly boosted by the Series F of Anduril, mostly focused on autonomous defence technologies. To complement its defence offer, the American company develops solid rocket motors for defence and space launch systems, as well as a proprietary aluminium-lithium alloy propellant which boosts rocket performance.

The only European company present on the top ten, D-Orbit, develops a range of in-orbit solutions, from last-mile delivery of satellites to space waste management services. Following its Series C extension, the company obtained a €120M contract with ESA for the development of an in-orbit GEO services platform.

	Funding (\$M)	Segment	Activity
 Anduril	1 500 / <i>Series F</i>	Downstream	Software / Solid Rocket Motor Manufacturing
 Astranis	200 / <i>Series D</i>	Upstream	Satellite Manufacturing
 Deep Blue Aerospace	140 / <i>Series B</i>	Upstream	Launch Service Provider
 Orbitworks	100 / <i>Other</i>	Upstream	Satellite Manufacturing
 i-Space China	99 / <i>Series C</i>	Upstream	Launch Service Provider
 X-Bow Systems	70 / <i>Series B</i>	Upstream	Solid Rocket Motor Manufacturing
 Muon Space	57 / <i>Series B</i>	Upstream	Satellite Manufacturing
 D-Orbit	56 / <i>Series C extension</i>	Upstream	In-Orbit Services
 AstroForge	40 / <i>Series A</i>	Upstream	Space resource extraction & Use
 Armada	40 / <i>Other</i>	Downstream	Software

In total, European upstream space companies have raised over €800M in 2024, with €275M+ raised between mid-June and early October 1/2

EUROPEAN UPSTREAM SPACE FUNDRAISING DEALS⁽¹⁾ – JUNE TO OCTOBER 2024 1/2

	Date	Amount raised / funding type	Round Participants	Total funds raised	Company description	
 Isar Aerospace	20/06/24	€65M+ / Series C extension	NATO Innovation Fund, G3T, Airbus Ventures, etc.	€400M+	Launch service provider developing Spectrum, a 2 stages launch vehicle (1T to LEO and 700kg to SSO).	
 D-Orbit	27/09/24	€50M / Series C extension ⁽²⁾	Marubeni, Avantgarde, CDP Venture Capital, Iberis Capital, etc.	~€170M	Last-mile delivery of satellites, orbital transportation, space logistics, mission control as a service, and space waste management services	
 ALL.SPACE	02/10/24	~€40M	Boka Group, Seraphim Space, AE Ventures, Promus Ventures	~€144M	Satellite terminals for high-speed multi-orbit multi-network communications for military applications	
 PLD Space	12/07/24	€31,2M / Debt	Banco santander, EBN Banco, Instituto de Crédito Oficial	€150M+	Launcher provider developing the Miura 1 suborbital and Miura 5 reusable orbital rockets	
 Sateliot	23/09/24	€30M / Series A	Global Portfolio Investments, Indra, Cellnex, Sepide	€55M	LEO satellite constellation for global 5G connectivity of IoT devices	
 OroraTech	15/10/24	€25M / Series B	Korys, ECBF ⁽³⁾ , Bayern Kapital	€45,8M+	Wildfire prediction and management through proprietary and other EO satellites	
 Constellation Technologies and Operations	14/10/24	€9,3M / Pre-Seed	Expansion, French Tech Seed Fund	€9,3M	Satellite constellation for high speed, low latency internet access	
 FOSSA	19/06/24	€6,3M / Series A	Indico Capital Partners and Nabtesco	~€10M	Operator of picosatellites, and now larger cubesats for connectivity services for remote monitoring and tracking devices	

(1): Over €1M; (2): ; Brings the Series C total to over €150M; (3): European Circular Bioeconomy Fund
Sources: Alba & Co, L'Usine Nouvelle, Space Impulse, European Spaceflight, Les Echos, Companies websites



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EUROPEAN UPSTREAM SPACE FUNDING ROUNDS⁽¹⁾ – JUNE TO OCTOBER 2024 2/2

	Date	Amount raised / funding type	Round Participants	Total funds raised	Company description	
	Dcubed	05/08/24	€4,4M/ Series A	Expansion Aerospace Ventures, BayBG VC, HTGF, Rymdkapital, etc.	€4,4M+	Space hardware and subsystems: release actuators, solar arrays, deployable subsystems
	IENAI	18/06/24	€3,9M	WA4STEAM, DPM, GED Conexo Ventures, and CDTI.	€7M	Develops a space propulsion system and satellite manoeuvres planning software
	Lodestar Space	25/07/24	€3M/ Pre-seed	Inflection, Lunar Ventures, UK Space Agency	€3M+	Development of platform agnostic robotics systems, including a robotic arm, to perform satellite inspections in orbit
	Veoware Space	19/09/24	€2,5M	Henkes & Co, imec.istart future fund, Ostbelgieninvest – OBI, Noshag	€2,5M+	Specialised in enhancing smallsats' agility and manoeuvrability through advanced actuator technology
	Involve Space	03/09/24	€2,5M / Seed	Earlybird Venture Capital, CDP, Intesa Sandpaolo, TLI Space, etc.	€2,5M+	Stratospheric balloons for infrastructures, natural disasters and traffic real time monitoring, defence, testing and telecom.
	Kreios Space	24/07/24	€2,3M / Pre-Seed	Grow Venture Partners, XesGalicia, SpaceQuest Ventures, Tasivia Global	€2,3M+	Electric propulsion technologies for satellites
	ISPTech	02/07/24	€2M / Pre-Seed	HTGF, First Momentum Ventures, Possible Ventures	€2M	Spin-off of the German Aerospace Center (DLR). Develops innovative propulsion systems based on non-toxic, « green » propellants
	Polaris Spaceplanes	19/09/24	ND	Dienes Holding	€7,1M	Reusable space launch and hypersonic transport system Expecting to close significant funding round in 2025



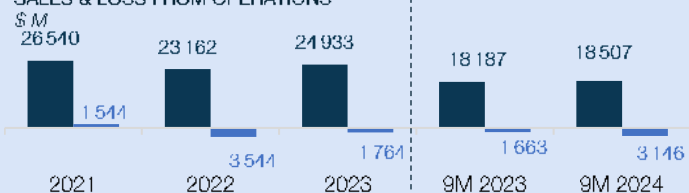
Are we coming up to a major reshuffle in the space industry: the key industrials' results, the perspective of cuts and possible M&A operations

BOEING, THALES, AND AIRBUS: RESTRUCTURATION PLANS FOR THEIR SPACE ACTIVITIES

Following struggles in the supply chain and in light of recent subpar financial results, three key space industrials, Boeing, Airbus Defence and Space, and Thales Alenia Space, are considering restructuration of their activities in the form of the workforce reduction, merger or sales of their space activities

Boeing – Defence, Space & Security

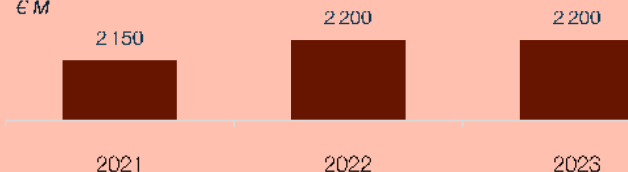
SALES & LOSS FROM OPERATIONS



Following bad financial results of the group stemming from accidents, quality issues and a 7 weeks strike, Boeing's CEO launched a strategy to streamline the company, which could include parting with a segment of Boeing's space activities. The company is considering the sale of its NASA business, which includes the operations supporting the ISS, as well as the Starliner space vehicle. The Starliner was grounded ahead of its mission to bring back astronauts from the ISS amidst safety concerns. In September, the head of Boeing's defense and space business was fired. If the sale happens, Boeing would still keep its civil and military satellite activities.

Thales Alenia Space

SALES (est.)
€ M

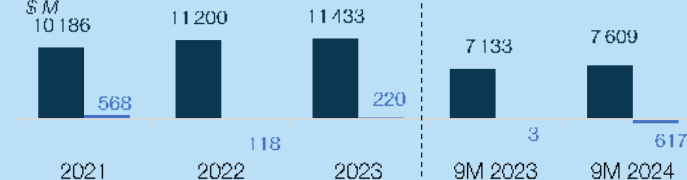


Thales Alenia Space is facing a complicated situation. On the one hand, an order book getting thicker by the minute, with important contracts signed at the IAC⁽¹⁾, amounting to €352M, and on the other hand a struggling workforce reduction plan in France. The new orders mostly fall on Italian factories, and do not put a stop to the departure plan of 1200 employees in France, launched to adapt the company to the changing telecommunications market.

To face the change of paradigm affecting telecoms satellite manufacturers, Airbus and Thales are considering the unification of their space activities from Airbus DS and TAS, which could take various forms, being a merger, a JV, a regroup by activities, etc. Such a merger is complicated given the antitrust rules in Europe. A project this newsletter will follow closely...

Airbus Defence and Space

SALES & EBIT
\$ M

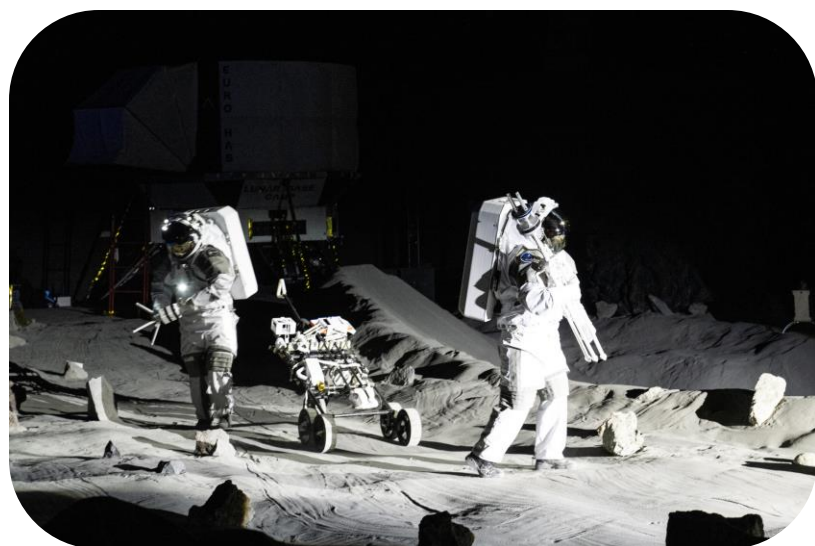


Although the sales of ADS seem to point to positive dynamics, the company announced in June 2024 additional charges of €989M linked to updated Estimates at Completion of Space Systems. Following this, Airbus announced a reduction of its structural costs. ADS will reduce its workforce by 2 500 people, representing about 8% of its workforce. It will also focus on not taking contracts at loss, reducing R&D efforts, externalising some activities, etc.

Europe's getting ready for the Moon: ESA inaugurates its lunar test facility, LUNA, to simulate lunar environment for testing and training

LUNA TEST FACILITY

Located in Cologne, Germany, next to the European Astronaut Training Centre, the lunar analogue facility LUNA was inaugurated on September 25th by its two co-operators, the European Space Agency and the German Space Agency (DLR). Its goal is to recreate lunar conditions to allow for technological testing and human training of astronauts, scientists, engineers and mission experts. Open to not only agencies and academia but the whole space industry, including startups and SMEs, it will serve to prepare European and international actors for the return of humans and human technology on the Moon.



LUNA TEST FACILITY COMPONENTS

Sampling and drilling areas (up to 3 meters) to conduct research on regolith, including frozen lunar soil	An adjustable ramp for testing rover mobility on lunar slopes
A 700m ² lunar-like volcanic regolith surface and dust chamber to test techs in real conditions	Simulated lunar polar sunlight cycles, replicating challenging lighting conditions on the Moon
A simulated entrance to a lava tube	Spacesuits and a vertical suspension system to simulate Moonwalks under lunar gravity
A seismic station	A connected habitat training area

The IRIS² concession contract has been awarded to the SpaceRISE consortium: a look back on the constellation's goals and structure



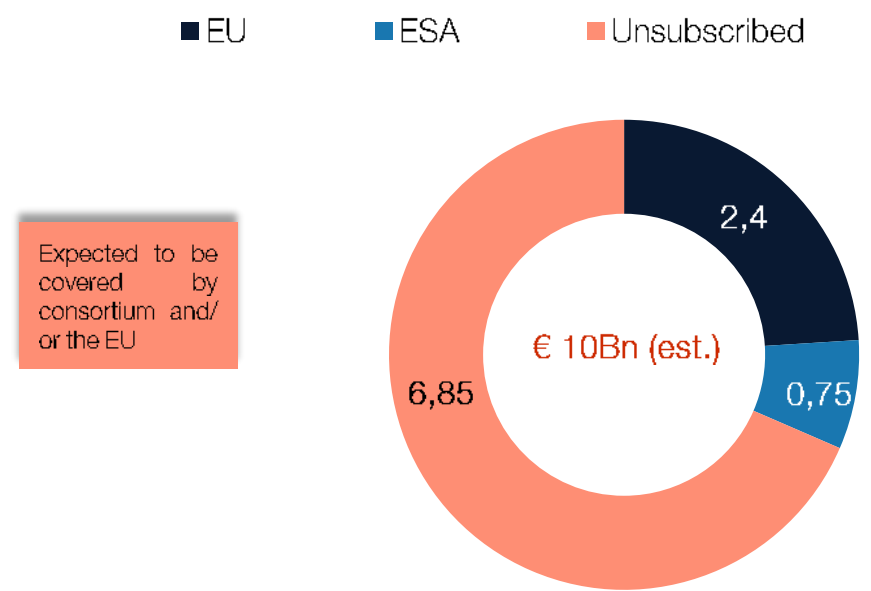
THE THREE PILLARS OF EUROPEAN SATELLITES

GALILEO: Global navigation satellite system, providing highly accurate guaranteed positioning service under civilian control (Operational since 2016)

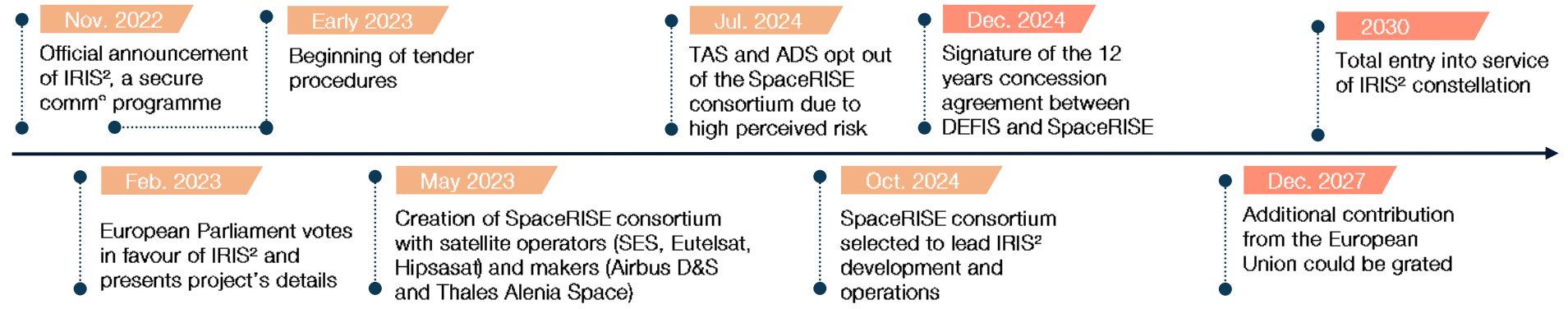
COPERNICUS: Earth Observation satellite constellation for land management, the marine environment, atmosphere, emergency response, security and climate change (First launch in 2014)

IRIS²: multi-orbital communication megaconstellation (up to 30 000 satellites) aiming at providing reliable, cost-effective, and ultra-secure connectivity for governmental⁽¹⁾ and commercial communication everywhere in Europe and Africa

IRIS² BUDGET



- IRIS² stands for Infrastructure for Resilience, Interconnectivity and Security by Satellite
- By dedicating 30% of the workload to start-ups, the intention is for IRIS² to be an "innovation vector". It is expected to channel disruptive technologies such as quantum cryptography for secure communications
- The SpaceRise consortium includes SES, Eutelsat and Hipsasat, supported by a core team of subcontractors: Thales Alenia Space, OHB, Airbus D&S, Telespazio, Deutsche Telekom, Orange, Hisdesat and Thales SIX.



(1): Applications such as border surveillance, military communications, crisis management, or communication and protection of key infrastructures such as embassies
Sources: Alba & Co, La Tribune, European Commission, LinkedIn, L'Usine Nouvelle

French news: updates on French space companies

French space companies are expanding to maritime

The Euronaval trade show started this Monday in Paris, and many space companies are present. **Unseenlabs**, the maritime surveillance constellation company, is evidently there, but also **Sodern**, the optronics ArianeGroup subsidiary; **Hemeria**, which develops nanosats, balloons and payloads for defense and commercial, and others whose space expertise can benefit the maritime industry.

Sirius Space Services is hot and ready for 2025

The French launch startup has announced that it had **successfully completed the hot fire test campaign** of its **STAR-1** rocket engine thrust chamber. This milestone validates the design of the STAR-1 thrust chamber, which Sirius developed through additive manufacturing. The company is now advancing towards a full-scale STAR-1 engine test in 2025.

Leanspace, the France 2030 laureate that shoots for the stars

After winning in July the **Umbrella project** from France 2030 which granted it €10,5M, Leanspace aims at developing its **business with mega constellation operators**. The company develops a software platform that allows satellite operators to simplify the implementation of their ground segment. The company already works with Prométhée, Constellation Technologies & Operations, etc.

Andromach goes to Bordeaux

The suborbital plane startup, profiled in this newsletter in June 2024, will **move in spring 2025 to Bordeaux**, to conduct its operational tests. An opportunity for Bordeaux, to state its national role as a hub for propulsion. Andromach has raised pre-seed funds (undisclosed), which will support its team expansion and reach toward its goal of a **first launch in 2026**.

Hemeria continues its positioning in space surveillance

On October 16th, Hemeria took a **majority stake** in **ASTAREON**, the ONERA spin-off specialised in space surveillance services, which joins Hemeria under the name Hemeria Surveillance. ASTAREON's integration comes to reinforce the capabilities of **Hemeria Sensing (ex Opensci)** within the new division Intelligence & Data, strengthening Hemeria's **positioning in Space Situational Awareness**.

AUREA Technologies: the French ESA rising star

The Besançon based AUREA Technologies has been nominated by ESA as a 2024 Rising Star, for its development of high-performance optical instruments for Quantum Communications. **AUREA**, alongside 19 laureates, will have facilitated access to ESA Commercialisation services team to support their business development.

Fast facts: some selected tidbits about the state of the space industry

Starship has launched, and landed

SpaceX entered history books in mid-October when it succeeded in catching the first stage of its Starship launcher on its launch tower. A prowess which required precision of a few centimetres and is a testament to the technologies developed by the SpaceX teams: re-ignitable Raptor motors, hypersonic aerodynamic rudders, high precision guiding and navigation software, a thermal shield and, of course, a launch and recuperation tower.

More signatories to the Artemis Accords

The Dominican Republic, Estonia, Chile and Cyprus all signed the Accords in October, bringing the signatories list to 47 since the publication in 2020. Those Accords outline best practices for sustainable space exploration, building on existing agreements such as the Outer Space Treaty. The Accords are particularly crucial in a time of renewed international interest for lunar exploration.

Terran Orbital now belongs to Lockheed Martin

The acquisition, originally announced in August 2024, has been finalised last week. Terran Orbital develops customizable spacecraft with modular designs and mission services, for defense and civil applications. The acquisition will allow to integrate Terran Orbital's activities with Lockheed Martin's payload and mission systems activities, and lead to faster production and advanced space solutions.

The Tiangong space station is expanding

China announced this week its plans to increase the size of its space station. This expansion, along the presentation of a Hubble like telescope and other assets, will serve to support China's goal to put taikonauts on the Moon by 2030.

The announcement came with groundbreaking news, being that Tiangong will begin welcoming international visitors. A big change of approach from China.

Farewell, Vega

The Italian middle launcher Vega has performed its last launch on September 5th, sending into orbit the third Copernicus Sentinel-2 Earth Observation satellite for ESA.

The little sister VEGA C remains grounded following its Dec 2022 failure. It should launch again before end of year.

For Ariane 6, the second launch has been pushed to Feb. 2025 instead of 2024 end.

A heartbreaking discovery

John Hopkins has sent bioengineered heart tissue samples to the ISS, to investigate the effects of prolonged presence in space on human health.

The experiment showed that heart tissues beat half as strong in space as they do on Earth, potentially explaining why astronauts regularly come back to Earth with heart problems.

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Thank you for your read and support from the whole Alba & Co team!

I remain at your disposal for any question, suggestion, and space related strategic needs at constance.griton@alba-andco.com .

