

SPACE POLICY

The new challenges in outer space

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Dear Readers,

Space activities have evolved into a geopolitical tool that fuels intense competition and tensions among powers, as well as security risks. Even more so, for American space economist Sinéad O'Sullivan, space warfare is no longer science fiction (see pp. 1–3). To keep pace, Europeans are striving for greater autonomy in space. In this regard, the year 2026 was pivotal for Europe and the European Space Agency (ESA), as Pascal Legai, Security Advisor to the ESA Director General, explains in an interview (see pp. 4–6). A new milestone has also been reached in the field of Earth observation with the successful launch of sophisticated European satellites for scientific missions dedicated to monitoring vegetation, oceans, and the climate (see p. 7).



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Beyond science fiction – space-based warfare is already underway

By Sinéad O'Sullivan, European News Journal's US expert
on space, Boston

For the global defense industry, science fiction is quickly becoming science fact. The United States' army, behind the full force of its tanks, artillery and infantry, is now procuring lasers to blind enemy satellites and microwave weapons to "deafen" orbital radars. Slightly closer to Earth, it is even acquiring high-altitude military balloons to move combat to the stratosphere.

Speaking to Breaking Defense in August, Colonel Joe Mroszczyk, who directs the space superiority efforts of US Army Space and Missile Defense Command, remarked to the Space and

Missile Defense Symposium that "no-body finds it odd for the army to shoot a ship at sea, why should engaging a satellite in space be any different?"

Counterspace – a geopolitical priority

All sights are now set on adversarial intelligence, surveillance and reconnaissance (ISR) satellites that are increasingly dictating the operations of war. With the US army formally making counterspace a budget priority from next year, amid a new dedicated Space Operations Branch which opened in June, it now appears that



3D illustration of a laser weapon from earth destroying a satellite

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American superiority in space will go beyond just the US Space Command.

Behind these moves lies the motivation of a transparent battlefield. Ukraine has demonstrated war today – and in the future – will be dictated by satellite reconnaissance as a vital tool for managing land forces, which can now be countered by similar ISR in minutes. But the United States is not alone in this acknowledgement, with China already launching imaging and radar constellations that feed into a large reconnaissance-strike architecture that has been built specifically to monitor American and allied forces across the Indo-Pacific.

The Space Force's 2025 framework, "Space Warfighting: A Framework for Planners", has declared space a contested warfighting domain – with General Chance Saltzman remarking that owning space's orbits will lead to superiority in every other domain.

Entering a grey zone

For now, however, the weapons that are being drawn up are mostly non-destructive – they plan only to obstruct

the technology, not to eliminate it. For example, imaging satellites or sensors that rely on specific wavelengths can be "dazzled" by ground-based lasers, just as radar imagers can be overwhelmed with high-power microwaves and destructive frequency noise.

However, non-destructive countering of these technologies has drawbacks, specifically that it moves coun-

terspace operations into a grey zone. This contested means will not engage the response of full conflict, but it is not quite peace either; the grey zone creates a dispute that doesn't cross the threshold of conventional war. This is, incidentally, where Europe already lives: Russia's interference with satellite navigation and communications on NATO's eastern flank gives the United States a preview of what that may look like.



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The other superiority contest

Underwriting the rapid development of space lasers is an industrial and economic apparatus that Europe should pay equal, if not more, attention to. America's space and defense-tech boom has advanced on the back of two structural advantages.

The first is that the United States is home to the world's deepest capital markets, with venture and private capital flooding the technology market to create SpaceX, Anduril, Palantir and other firms that have shrunk the military development cycles from decades to years, or even months. The

second is that the US government is willing to act as a buyer of first resort, which in turn anchors early technologies with invaluable contracts which can be further utilized to make private capital investment possible.

And to these two advantages, Washington has recently added a third: an institutional arsenal that formalizes its superiority in economic warfare. The Pentagon's new Economic Defense Unit, established this year under Deputy Defense Secretary Stephen Feinberg, has been armed with \$200bn to secure supply chains and to treat economic competition with China as a standalone warfighting discipline.

In other words, space superiority is being pursued not only on hypersonic test ranges and in the Pentagon, but in corporate board rooms too.

Europe's dilemma

Europe must confront establishing itself in this domain with none of the three strategic advantages of American power. Contrary to the American model, Europe's capital markets are shallow – European family offices seek wealth preservation instead of wealth generation – while its governmental demand for weapons is fragmented across dozens of national buyers, making them exceedingly more expensive than the American counterparts –



We can no longer trust that satellites in low-earth orbit can be protected by their distance from Earth's weapons.

a double-edged sword. Its procurement is slow, and there is no European body that is equivalent in size or mandate to the Pentagon's Economic Defense Unit.

Therefore, if Europe is to enter space-based warfare, it must compensate structurally.

The development of European sovereign reconnaissance capabilities in space can only be the outcome of aggregated demand across the whole of the EU programmatically, using the European Investment Bank to deliberately bring private capital into space co-investments. It must also assume that its own assets such as France's reconnaissance satellites and Copernicus, the commercial imagery that European forces increasingly depend on, will become themselves targets of the jamming technologies that the US army is developing. Even with aggregated procurement, it is no longer

enough to simply own the satellite assets. Investing in resilience and rapid reconstitution accordingly is now a priority for Europe, should they find their satellites targets of an adversarial strike.

However, Europe has in its back pocket the one card that its competitive superpowers do not – the credibility to lead multilateral engagement to create shared rules on interference with space systems in order to create a fair-use framework, before adversarial use hardens into a precedent.

We must recognize the new age of science fact

As we move into this new age of science fact, we can no longer trust that satellites in low-earth orbit can be protected by their distance from Earth's weapons. Today, the contest for space superiority will be increasingly decided by the depths of a region's capital markets and procurement processes. Europe can still compete, of course – but it must recognize that it is competing in the domains of the economics of adversarial space power as well as the technology itself.

A comparison of US versus European capital allocation in the space industry

UNITED STATES	EUROPE
\$40bn	€14.88bn
FY2026 US Space Force budget	EU Space Programme, 2021–27
Government as buyer of first resort	Demand fragmented across national buyers
Defence contracts can anchor emerging technologies and attract private capital	European procurement remains divided across national systems
Deep private-capital markets	More constrained growth financing
Venture and private capital can scale firms rapidly	EU is building mechanisms to crowd private capital into space

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The Advisor to the Director General of the European Space Agency (ESA) speaks about European autonomy in space, the geostrategic importance of the moon, and Europe's plans to land on Mars by 2040.

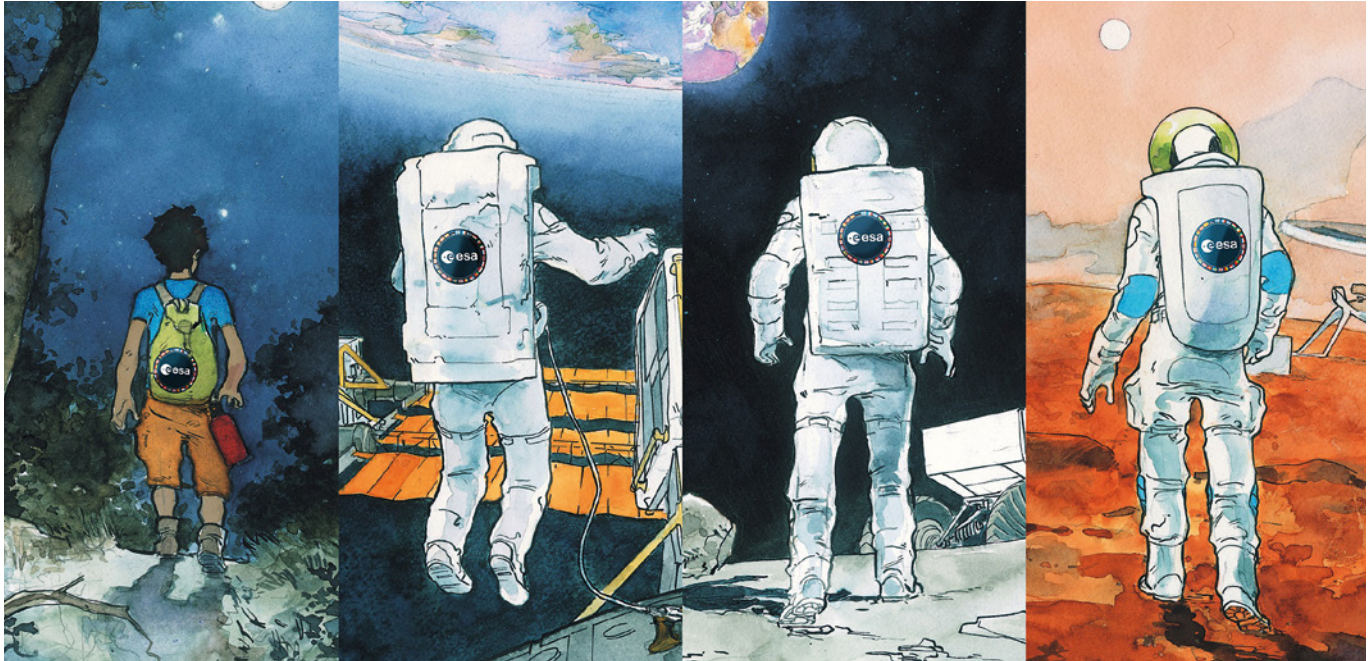


Illustration of ESA space explorations

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2026 – a pivotal year for ESA and Europe's space policy

Interview with Pascal Legai, Advisor to the Director General of the European Space Agency (ESA), Paris

(ENJ/Hartmut Bühl) During my conversation with Pascal Legai at the European Space Agency (ESA) headquarters in Paris (June 2026), we agreed that having abandoned its "pacifist" stance on space matters after more than six decades, Europe is finally ready to integrate the use of space into its security and defence policy. ESA, too, has made this shift, even though defence-related activities were long a taboo subject for some of the agency's member states, as highlighted by [ESA Director General Josef Aschbacher in an interview published in the European News Journal's](#) previous edition.

However, a revolution is also underway within the space sector itself, with the emergence of numerous private players, some of which compete with

state-led space activities. This could jeopardise Europe's autonomy in the areas of telecommunications, navigation, research and the use of space, including for defence. Europe must therefore reinvent itself, driven by a pioneering spirit and a willingness to take risks and invest in the future.

Mr Legai, on 25 November 2025, ESA's 23 member states approved a substantial budget of €22.3bn for the period 2026–2028, which provides great flexibility for the agency's work. However, does this allow ESA to realise the various projects announced by its Director General? What is your outlook for the European space sector?

PASCAL LEGAI: Above all, I foresee an acceleration of European auton-

omy by a massive increase in public and private investment, and the transformation of space into a genuine critical infrastructure system rather than merely a technology sector. Several key areas are emerging regarding the outlook for the European space sector: First, the agency plans a record 65 launches of missions and satellites in 2026, driven by the Ariane 6 heavy-lift launcher and Copernicus Earth observation satellites.

Second, there will be a strong focus on sovereignty in human spaceflight, as it is essential that Europe masters its own capabilities for accessing human spaceflight and low Earth orbit.

Third, I foresee major support for the space economy in terms of innovation and competitiveness vis-à-vis the United States, by stimulating private funding and developing disruptive technologies (defence, secure connectivity).

Finally, resilience through programmes such as Galileo and Copernicus will be strengthened, which is essential for security, the environment, and European autonomy.

You mentioned the Ariane 6 launches. The ESA Director for Space Transport announced that the agency intends to double them. Can you tell us more about ESA's launcher policy?

PASCAL LEGAI: ESA's launcher policy is centered on securing autonomous, resilient, and sovereign access to space for Europe using a fleet of European-built rockets, primarily the Ariane 6 and Vega-C. While Arianespace targets seven to eight flights in 2026, ESA's policies to bridge capacity and demand include several elements.

The **European Launcher Preference** strongly advocates for sovereign and institutional payloads to be given exclusively to European rockets whenever available. With the Expanding Domestic Capacity, ESA is studying methods to scale the Ariane 6 launch cadence to 12, 15, or even 20 flights per year to meet surging demand.

Moreover, with the **Commercial Space Transportation Element** and initiatives like the BOOST! programme and the European Launcher Challenge, ESA is commercialising its infrastructure and supporting private European operators and startups to foster a competitive new launch sector.

Finally, with **Future Ecosystems & Reusability**, ESA is heavily investing in the future of space transportation through programmes targeting green propulsion, reusable first stages, and orbital logistics, intending to transition to fully reusable, liquid-propulsion systems by 2030.

What about European flagship programmes and ESA's participation in the International Space Station (ISS)?

PASCAL LEGAI: Among our flagship programmes are Galileo Second Generation (G2); Europe's planetary defence mission Hera, which reached the Didymos binary asteroid system to survey the results of humanity's first asteroid deflection test; Moonlight, an ESA dedicated constellation of lunar satellites to provide robust communication and navigation services for the upcoming Artemis lunar surface missions, and the European environmen-



Ariane 6 liftoff from Europe's Spaceport in French Guiana, 17 June 2026

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tal flagship programmes such as the Copernicus Sentinel series (eg. Sentinel-3C) and collaborations such as the SMILE mission with China.

Regarding the ISS, Europe is actively planning its 2030 retirement. Rather than building a singular sovereign station, ESA has partnered with commercial space developers (Airbus, Vast).



I foresee an acceleration of European autonomy by a massive increase in public and private investment.

Will innovative projects such as the reusable civilian and military mini-navette Space Rider, or the Themis launcher remain purely European?

PASCAL LEGAI: Projects like Space Rider and Themis are fundamentally designed as European sovereign capabilities. They exist to guarantee autonomous European access to space and independent in-orbit operations,

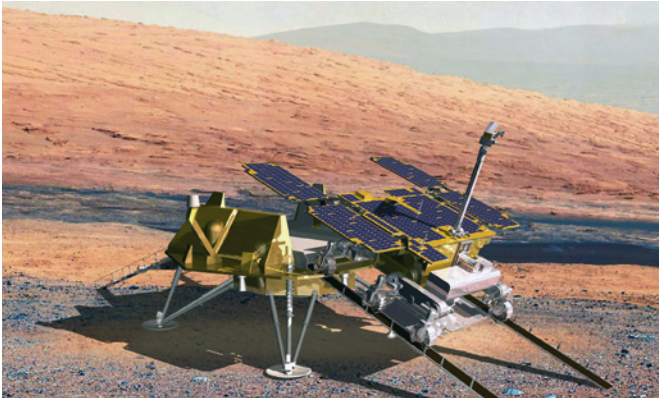
though they rely on partnerships with EU Member States' agencies (like CNES in France and DLR in Germany) and industry players (like ArianeGroup). Their core development and funding remain strictly European. As an example, the Themis Launcher programme focuses entirely on building a European technological ecosystem to compete with global integrated models, with low-altitude flight tests taking place at the Esrange Space Center in Sweden.

Let's look at the future of solar system exploration. First, will the Americans return to manned moon missions, or will the moon be left to the Chinese, who are making every effort to land a crew there by 2030?

PASCAL LEGAI: Americans announced and are preparing manned missions to the moon. Despite the massive investments in robotic and uncrewed architecture – and ongoing budget debates – NASA's Artemis programme is actively developing landers and staging infrastructure to put astronauts on the lunar surface, with goals for a crewed landing targeted between 2027 and 2028. That means the US will not leave the moon to China.

But why is the moon so important from a geostrategic perspective?

PASCAL LEGAI: The renewed geo-



Artist view of the landing platform of the ExoMars Rosalind Franklin mission on Mars.

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ESA's position on Mars exploration focuses on a short-term reliance on robotics combined with the long-term goal of sending European astronauts to Mars by 2040.

strategic focus on the moon – by both the United States and China – stems from several key factors.

First, both nations are targeting the same resource-rich region, with materials which can be used to sustain human life. Second, establishing a sustained, permanent presence on the moon creates a cheaper and safer test bed to learn how to survive on other planets before attempting crewed missions to Mars. Third, the race will ultimately dictate which nation establishes the infrastructure guidelines, technical standards, and foundational presence on the moon's surface. And finally, the US has formed the Artemis Accords, an agreement with over 60 countries for the peaceful use of space. Meanwhile, China is partnering with Russia and others to build the International Lunar Research Station.

Is there really a future for crewed missions? What is ESA's stance on Mars exploration? For instance, will it begin by establishing a permanent base on the moon, from which crewed expeditions to Mars could be launched, or will it prioritise more cost-effective robotic exploration?

PASCAL LEGAI: ESA's position on Mars exploration focuses on a hybrid approach: a short-term reliance on robotics combined with the long-term goal of sending European astronauts to Mars by 2040. ESA's Exploration Strategy focuses on **Robotics as the Precursor** such as the life-searching "Rosalind Franklin" rover (targeted for launch), and orbital missions that

Terrae Novae

Terrae Novae is ESA's human and robotic exploration programme. The main objectives are threefold: to create new opportunities in Earth orbit for a sustained European presence in the post-International Space Station (ISS) era, to enable the first European to explore the moon's surface by 2030 as a step towards sustainable lunar exploration in the 2030s, and to prepare for the goal of Europe being part of the first human mission to Mars.

characterise the Martian environment. The agency's overarching roadmap for the next decade is the **Terrae Novae 2030+** vision, which aims for the first European astronaut on the lunar surface before 2030, serving as a testing ground and stepping stone for the ultimate horizon goal of a human voyage to Mars by 2040.

As you rightly said, full-scale crewed Martian missions – and even Mars Sample Return campaigns – devour astronomical sums and require international cooperation, that's why the ESA Director General is advocating for increased European funding to secure sovereign, sustainable, and independent exploration capabilities.

Europe needs partners to develop and implement major projects. To conclude our conversation, could you give our readers a brief overview of such cooperation?

PASCAL LEGAI: ESA has prioritised international partnerships. In the area of global space exploration, collabo-

rations include major agreements with the Indian Space Research Organisation (ISRO) for astronaut training and research using ISS facilities.

In the field of earth observation and climate action, we are closely collaborating with the European Commission on the Space for a Green Future accelerator, combining Earth observation data to support the European Green Deal and tackle climate change.

For international science missions, ESA has maintained strong transatlantic ties for the management of joint projects like the James Webb Space Telescope with NASA, and ongoing space science missions with Chinese partners like the SMILE satellite.

Finally, with regard to private and commercial sectors, ESA actively partners with venture capital firms and private banks to boost space technology investment across Europe.

Thank you, Mr Legai, for this insightful conversation.

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NEWS

Spectacular tandem launch of new Earth observation satellites

(ENJ, hb/nc) A new milestone has been reached in European Earth observation. On 14 September 2026 at 22:21 local time, the first Flex Earth Explorer satellite, together with a Copernicus Sentinel-3C satellite, was launched on board a Vega-C rocket from the European spaceport in French Guiana.

The European Space Agency's (ESA) Director of Earth Observation Programmes, Simonetta Cheli, said that the launch was "the culmination of years of scientific innovation, engineering excellence and international cooperation".

A technical feat

Launching the FLEX and Sentinel-3C satellites into their respective orbits on the same rocket was a remarkable technical feat. For this first dual launch aboard the European Vega-C rocket, a secondary payload adapter known as Vespa was used to stack the two satellites inside the Vega-C fairing for the launch.

Sentinel-3C, mounted on top of the Vespa structure, was placed into orbit first, followed by FLEX about an hour later. After the deployment of both satellites, ESA's European Space Operations Centre (ESOC) in Darmstadt, Germany, received the eagerly awaited first signals from the satellites, confirming that both had been safely released and had established contact with ground control.

ESOC has taken over the task of preparing the satellites and their instruments for their missions in orbit. Once the Sentinel-3C satellite is fully operational, the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) will be responsible for its operation, whereas FLEX will remain under ESA control.



Vega-C fairing opens to reveal Sentinel-3C and FLEX

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FLEX and Sentinel-3C launch: watch the video



© ESA (video)

FLEX – measuring photosynthesis

FLEX (Fluorescence Explorer) is a new research mission developed within ESA's Future Earth Observation Research and Development programme (FutureEO). The launched FLEX satellite designed specifically to measure photosynthetic activity from space will provide new insights into plant health and the role of photosynthesis in carbon and water cycles. Equipped with a fluorescence imaging spectrometer detecting the extremely faint fluorescence emitted by plants during photosynthesis, FLEX provides measurements helping scientists assess vegetation health, ecosystem productivity, and the effects of environmental stress and climate change.

Sentinel-3C – reinforcing Copernicus

Equipped with a suite of state-of-the-art instruments, Sentinel-3C is the third satellite in the Sentinel-3 series, supporting the long-term collection of essential environmental data as part of the European Copernicus services. The data provided by the new satellite in near-real time will help monitor conditions over oceans, land, ice, and the atmosphere, as well as support weather forecasting and climate research.

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