Tomorrow's Affairs
Analysis of today
Assessment of tomorrow

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Europe gets its own key to orbit

When Europe's new Ariane 6 rocket made its flight from French Guiana on 9 July 2024, it was not just a technological event. It was a sign that Europe once again had its own access to space after the retirement of the old Ariane 5 and the end of cooperation with Russia, which blocked access to Soyuz.

A year earlier, it had actually looked as if Europe did not have its own key to space, which was almost embarrassing for a continent with ambitions of strategic independence.

The first flight of Ariane 6 in July 2024 confirmed the rocket's basic capabilities - to launch safely, carry the payload and perform the basic manoeuvres - but also revealed problems with the upper stage, particularly during the satellite deployment phase and during the final tests of the long-term engine operation.

These failures did not jeopardise the flight but showed that additional tuning and improvements to the software and procedures are required before the rocket can perform a series of commercial missions.

Now, in mid-2025, the situation is clearer: the first real commercial launch was carried out in August, and the next major payload - the Sentinel-1D satellite - has arrived.

Why Sentinel-1D is important

Sentinel-1D is part of the European Copernicus programme, the largest Earth observation system in the world. Its speciality is that it uses a radar sensor that can detect the surface of the planet even through clouds and at night.

This means that it provides data that is crucial for monitoring floods, ship movements, glaciers, fires and even military activities.

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The old satellites in this series are struggling: Sentinel-1B is out of service, and Sentinel-1A has limited operational capability. To avoid a dangerous data gap, Europe urgently needs to launch 1D. It was delivered to French Guiana on 11 September and is now being prepared for the Ariane 6 flight.

In other words, it's not about luxury, it's about infrastructure. Without the radar images from the Copernicus programme, it is difficult to monitor climate risks, agricultural changes or safety at sea. Ariane 6 is therefore not just a rocket for "big dreams" about space but part of the everyday functioning of Europe.

Rocket sovereignty

Why do Europeans care so much about the success of Ariane 6? Because a rocket is practically the only safe transport system that Europe can use to send its satellites when and how it needs them.

The US company SpaceX flies often and cheaply, but that means that European missions depend on someone else's calendar and politics. Given that the war in Ukraine has blocked access to the Russian Soyuz, it is clear that there is no safe route other than Europe's own.

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"European sovereignty in space" in practice means control over the entire chain - from engine design to rocket and launch pad to data transmission. If you rely on others, you run the risk of no longer having access when you need it most. This was already the case in 2022 and 2023, when certain European missions had to

wait or look for interim solutions.

What Ariane 6 is and what it is not

Ariane 6 is not designed to break launch records or compete with SpaceX on price.

It is designed as a modular rocket – it can carry different payloads into different orbits, from navigation satellites to large scientific missions. Its value lies in reliability and predictability, not in spectacle.

> If the satellite is late, not only is the data delayed, but also a whole series of decisions and plans

For decades, European industry has earned a reputation for honouring contracts and putting satellites into operation on the agreed date.

This may be less attractive for the front pages, but for governments, the military, meteorological institutes or agriculture, it means stability. If the satellite is late, not only is the data delayed, but also a whole series of decisions and plans.

The economy of space and the politics of risk

There is also a less visible aspect: insurance and financing. Every mission must be insured. If the insurers see that Ariane 6 flies successfully and there are no improvisations, they lower the premiums and allow smaller countries and universities to launch their own satellites.

The stability of a rocket is not only a technical issue but also a question of money.

The same applies to the European supply chain. Thousands of parts for Ariane 6 are manufactured by companies across the continent.

If the flights take place regularly, these companies will hire new engineers, invest in factories and pass on their knowledge to the new generation. If the flights are cancelled, this chain will weaken, and something that cannot be bought overnight will be lost.

What are the risks?

The biggest challenge for Ariane 6 over the next year will be its launch frequency. Europe doesn't need to launch as often as SpaceX to be safe, but it does need to show that it can maintain a stable schedule.

This means that there must be no major pauses or sudden technical problems.

Another challenge is the reliability of the rocket's upper stage, which puts the satellite into the correct orbit. During the test flight in 2024, weaknesses were identified precisely there, which the engineers rectified in 2025. If it now proves to work perfectly, confidence will be much higher.

> SpaceX can offer lower prices because it flies much more frequently and uses partially reusable rockets

The third challenge is cost. SpaceX can offer lower prices because it flies much more frequently and uses partially reusable rockets.

Ariane 6 can't do that – but it can explain why it's worth paying a little more. For European governments and institutions, the answer is clear: because the satellites are launched according to European laws, from European launch pads and with European data control.

Why this is more than just a rocket

When ESA describes Ariane 6 as a "strategic resource", it means that it is not just the orbit that it has in mind.

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In this respect, Ariane 6 is part energy, part agriculture and part security.

Sentinel-1D, now awaiting flight, is a good example of this. Its radar images are used to estimate flood levels in real time, monitor tankers in the Mediterranean or check the ice cover in the Arctic. It is the data on which life, trade and security depend, and it comes from satellites that can only work if a rocket puts them into orbit.

What comes next?

Over the next twelve months, Ariane 6 must prove that it can fly rhythmically and reliably and that it is financially viable. If it is successful, Europe will fill the gap left by the retirement of Ariane 5 and the loss of Soyuz.

If it fails, Europe will once again be dependent on the calendars and decisions of others.

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Therefore, the commercial launch in August and the arrival of Sentinel-1D in September cannot be considered separately.

They are elements of the same picture – proof that the gap of the last three years is being filled and that Europe is once again gaining a stable corridor into orbit.

In space, as in business, routine is the key. Ariane 6 has the chance to become the rule, not the exception. If this is confirmed in practice, Europe will not only have a new rocket but also a new independence in one of the most sensitive areas of modern technology.