

SUCCESS: Space data centres: 'A figment of the imagination' but one that could make Europe a space leader



It may not be until 2036, but Europe is looking into how to send data centres into space in a sustainable way. Since generative artificial intelligence's (AI) take off, the demand for data centres has rocketed but with land shortages and the need for power, Europe is looking into sending data centres to space in a bid for data sovereignty and energy efficiency.

A recent study found that it is technically, environmentally and economically feasible to launch data centres into orbit in a way that is less energy-intensive than having data centres on the ground. "We can say today that the results are very encouraging," said Damien Dumestier, manager of the study from Thales Alenia Space.

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“We have found a solution that is technically feasible, makes financial sense and has a less impactful carbon footprint than on Earth,” he told Euronews Next. The study took 16 months to complete and €2 million. It was coordinated by Thales Alenia Space on behalf of the European Commission.

Data centres are the physical facility that houses an organisation’s computer systems and high volumes of data, which can be retrieved anywhere in the world. They require a lot of energy to run and also stay cool. By 2026, data centres could be using a total of 1,000 terawatt-hours annually, the International Energy Agency (IEA) estimates, adding that this is roughly equivalent to the electricity consumption of Japan.

But such an ambitious project probably would not be ready until 2036, said Dumestier and the issue is already on our doorstep.

“There's a small group of buyers that are incredibly powerful and hungry for data centre space and have deep pockets,” Kevin Restivo who leads European data centre research at real estate consultancy CBRE, told Euronews Next.

These buyers are the Big Tech companies such as Microsoft, Amazon Web Services and, Google, who are known as “hyperscalers”.

Restivo said there is a lack of available power in most European metropolitan markets and that appropriate land with access to a strong enough power supply is also increasingly difficult to find or secure. As a result, we are going to see data centres built in parts of European countries that have not had them before, he said, pointing to Microsoft’s purchase of land in Yorkshire in northern England, which not coincidentally already has power secured to the land.

‘A figment of the imagination’

As for sending data centres further afield, sending them to space is “a figment of the imagination more than reality right now,” said Restivo.

“Nevertheless, I think the research going to data centres in space or data centres underwater are worthy endeavours,” he told Euronews Next, adding, “testing the parameters of data centre development is crucial for the industry to grow”.

Such developments could include the ability to source other power methods than being connected to the electricity grid or having data centres operate autonomously with minimal intervention. But the benefits of researching far out ideas such as space data centres can also enable the development of other space technologies, such as robotics or launchers.

For the space data centres to be energy efficient, they would need a new type of launcher that produces 10 times fewer emissions, according to the study. The data

centres would also need to stay in orbit with rocket fuel, so an alternative might need to be found.

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Dumestier said he was in discussions with France's Ariane Group and with a German space company, which said that getting a more environmentally friendly launcher is not feasible tomorrow, but in a few years it could be.

Another issue is ensuring that space data centres do not add to the backlog of defunct and forgotten satellites. Dumestier said the data centres would orbit at an altitude of around 1,400 kilometres, which is higher than space satellites. But ensuring that space data centres have a long shelf life and the materials are reusable is key to meeting sustainability goals.

Space data centres could bring "data sovereignty back to Europeans and can give Europe a flagship opportunity for deployment and become a leader in the space sector," he said. "In terms of benefits, it is a big market that is accessible and it will open new doors for other applications".

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