

AUTONOMY

Europe must maintain the technical and industrial capacity for uninterrupted access to space, operations in space and return to Earth, particularly during times of geopolitical uncertainty. Accelerated technology developments, further measures to reduce the reliance on non-European entities and stronger public sector support are needed to safeguard Europe's autonomous access to space.

AHEAD TO 2025, 2030 AND BEYOND

For Europe to remain a global leader, it must retain an autonomous capacity to access space. Capability and affordability go hand-in-hand with efficiency and a dynamic relationship between the public and private sectors. Europe's creativity, ambition and strength in forging co-operation will ensure our continued and enhanced role in space.

STRATEGIC VISION

From agriculture to banking, from environmental monitoring to humanitarian relief, from studying the Universe to understanding our Earth, no aspect of modern society is untouched by space technology. Our economies and security depend on it. Launch vehicles, spacecraft and ground infrastructure are all needed to make this modern society work. Europe has achieved excellence in space transportation through decades of striving for greater performance and efficiencies. With our Member States' support, we will continue to innovate and push the technical frontiers to deliver European leadership in space.

A CLEAN FUTURE

Earth's environment and the space environment surrounding our planet are under unprecedented threat. Europe's work in space transportation is tackling these problems, with longstanding efforts to minimise orbital debris and ambitious plans to make Europe's Spaceport in French Guiana a model for clean operations on the ground. Advances in European rocket science and launch management techniques will also contribute to improvements in other fields, adding to the cross-disciplinary benefits of European rocket research in materials and manufacturing.



SPACE TRANSPORTATION

ACCESS TO SPACE

Our lives in the 21st century rely on space-enabled technologies. For Europe to provide its citizens with services ranging from navigation and communication to transport and security, we must be able to access space reliably, efficiently and independently of foreign entities. We all depend on space infrastructure, and our satellites and spacecraft in turn depend on launch services. ESA with its member states must maintain and advance skills in these cutting-edge technologies and services to fulfil our space ambitions and advance Europe's position as a leading space power.

OUR PROPOSAL

Ongoing developments:

- We will complete development of Ariane 6 and return Vega-C to flight, and continue work to enhance the performance of both models to meet evolving European needs.
- We will complete the development and enhance the services of Space Rider, a reusable spacecraft with the ability to return payloads from space to Earth.

Exploitation:

- We will accompany European industry in the first phases of the exploitation of Ariane 6 and Vega-C.
- We will pioneer low-carbon technologies including production of green hydrogen at Europe's Spaceport in French Guiana.

Future:

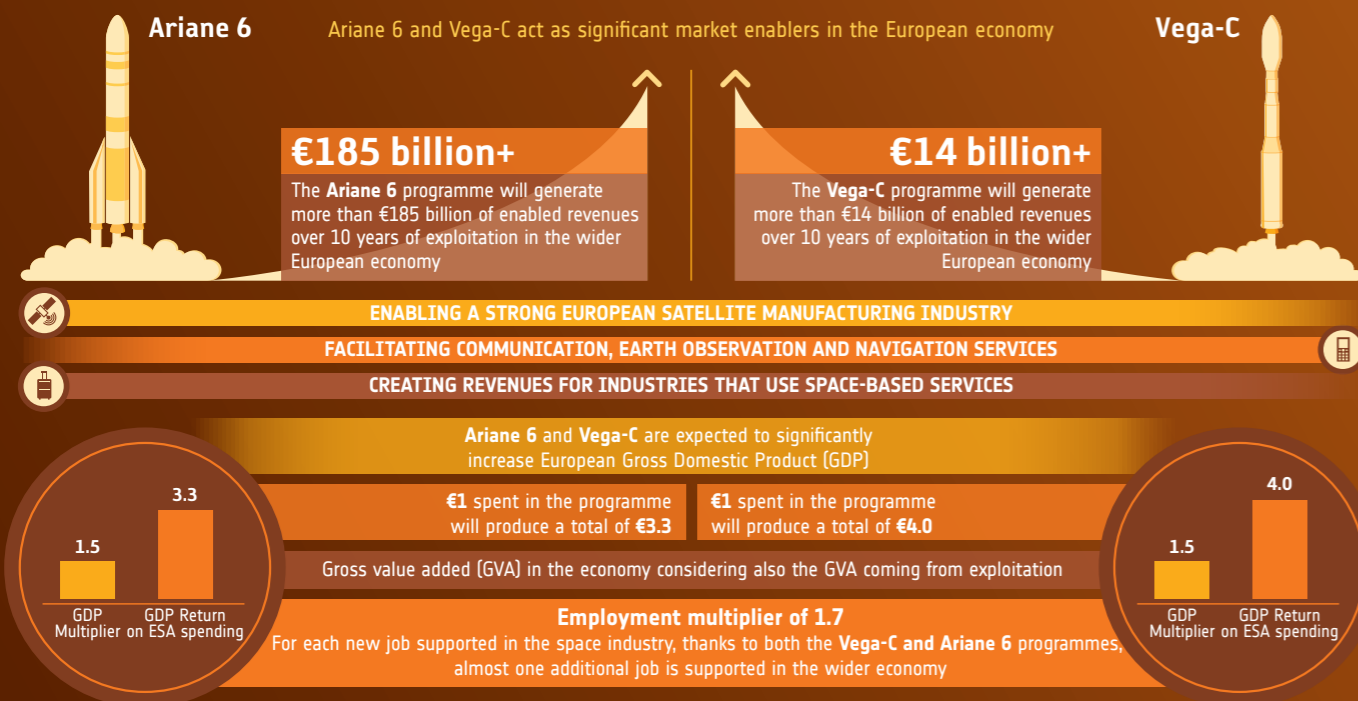
- We will prepare space transportation technology disruptors for the next generation of European space transportation systems and enhance the competitiveness of our launch vehicles starting with new and improved propulsion and reusability demonstrations.
- We will continue to support the emergence of a competitive, commercially robust private European space transportation sector.
- We will start preparatory activities for European human space transportation capabilities.

ESA'S LEADING ROLE

In the past decade, there has been an acceleration in the development of new space transportation capabilities and in the evolution of the global space transportation services market. Space transportation systems are part of an ecosystem of research, technology, industrial capability and services that must respond to changing institutional and private-sector mission requirements and financial models. ESA enables European space transportation solutions and innovation in every part of this ecosystem.

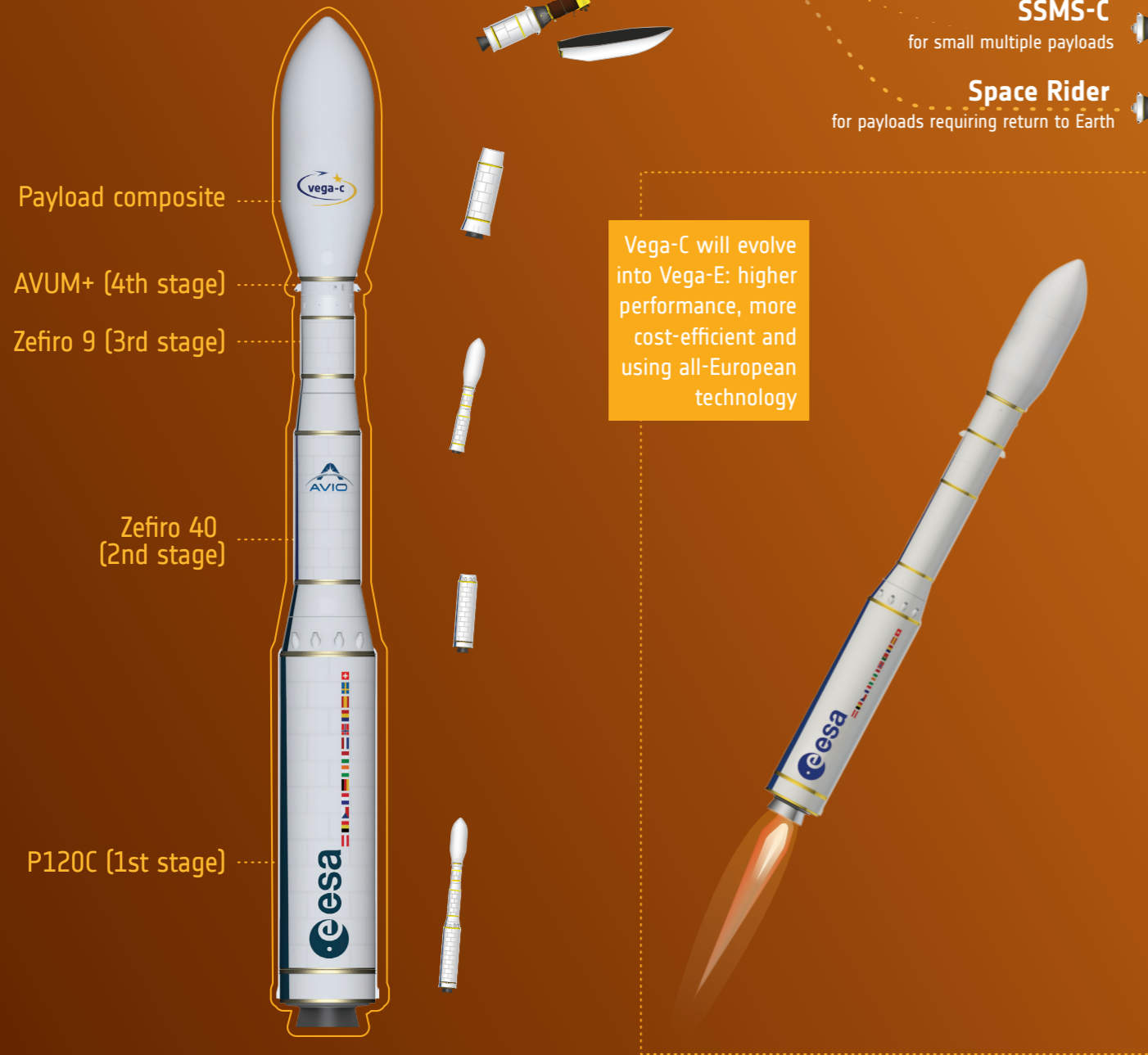
CREATING VALUE FOR EUROPE

The continued development and exploitation of space transportation services is essential for Europe to leverage space exploration, science, and applications for the wider benefit of society. Space transportation activities underpin the competitiveness of the European space industry, ensuring European non-dependence in space through the development of key technologies, investments in assets and advancements in know-how and industrial processes.



VEGA-C

Europe's Vega-C launch vehicle delivers a wide range of missions to Earth orbit – carrying single or multiple payloads of up to 2.3 tonnes on a single flight.



More than two months in low Earth orbit



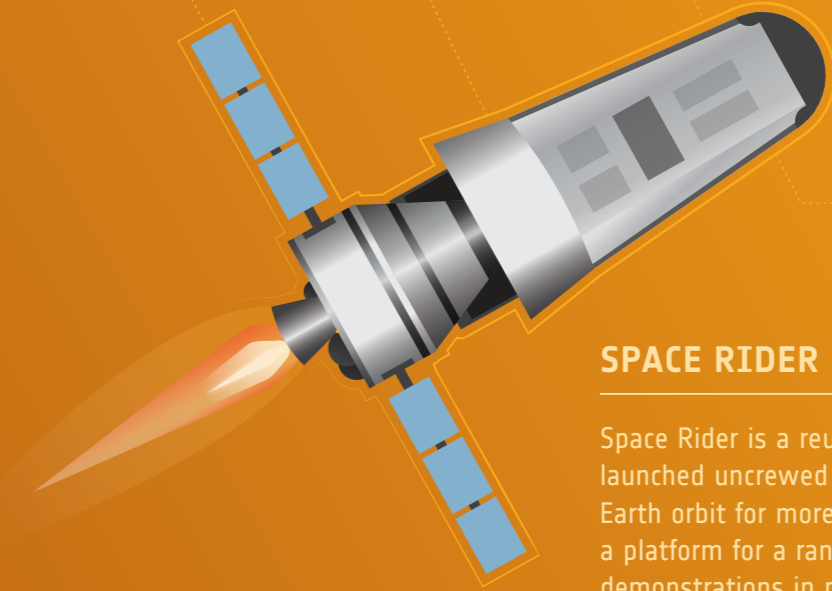
Reusable



Microgravity experiments and demonstrations



Return to Earth to be refurbished for another flight



SPACE RIDER

Space Rider is a reusable spacecraft. To be launched uncrewed on Vega-C, it can stay in low Earth orbit for more than two months, providing a platform for a range of experiments and demonstrations in microgravity. Following the end of its mission, it will be able to return with its cargo back to Earth, to be refurbished for its next flight.

ARIANE 6

Ariane 6 is Europe's new launch vehicle capable of delivering payloads of up to 21 tonnes into low Earth orbit. It will become capable of launching more mass after a 2028 upgrade. Ariane 6 combines versatility and flexibility to place one or multiple satellites into almost any orbit. Two-booster (Ariane 62) or four-booster (Ariane 64, pictured) versions meet a wide range of mission needs.



Can deliver payloads up to 21 tonnes



Versatile



Flexible

Europe's Spaceport in French Guiana

An innovative green hydrogen system will supply fuel for Ariane launchers, with the goal of eliminating carbon from Spaceport hydrogen production and helping introduce hydrogen fuel to the local economy.