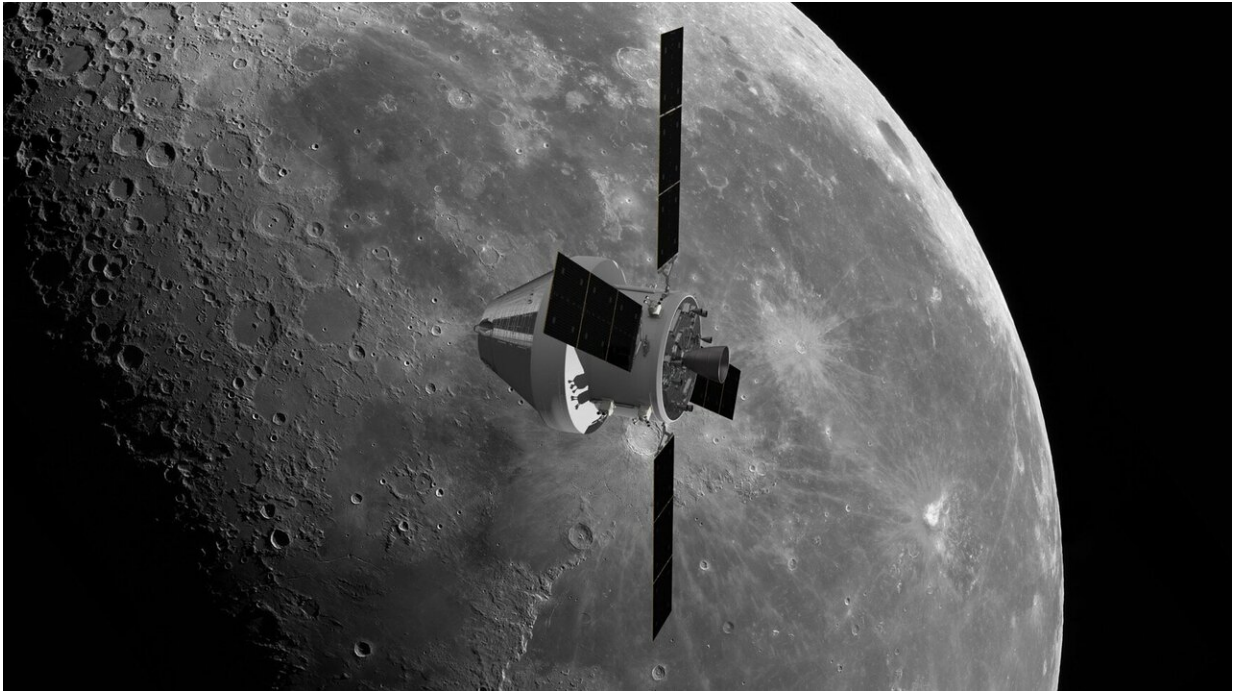


Gateway to the moon

March 12 2019



Orion is NASA's next spacecraft to send humans into space. It is designed to send astronauts further into space than ever before, beyond the Moon to asteroids and even Mars. When they return to Earth, the astronauts will enter our atmosphere at speeds over 32 000 km/h but the capsule will protect them and ensure a bumpy but safe landing. ESA has designed and is overseeing the development of Orion's service module, the part of the spacecraft that supplies air, electricity and propulsion. Much like a train engine pulls passenger carriages and supplies power, the European Service Module will take the Orion capsule to its destination and back. Orion will go further than any other crewed spacecraft has before and European design and technology will make that happen. Credit: European Space Agency

The International Space Station partners have endorsed plans to continue the development of the Gateway, an outpost around the moon that will act as a base to support both robots and astronauts exploring the lunar surface.

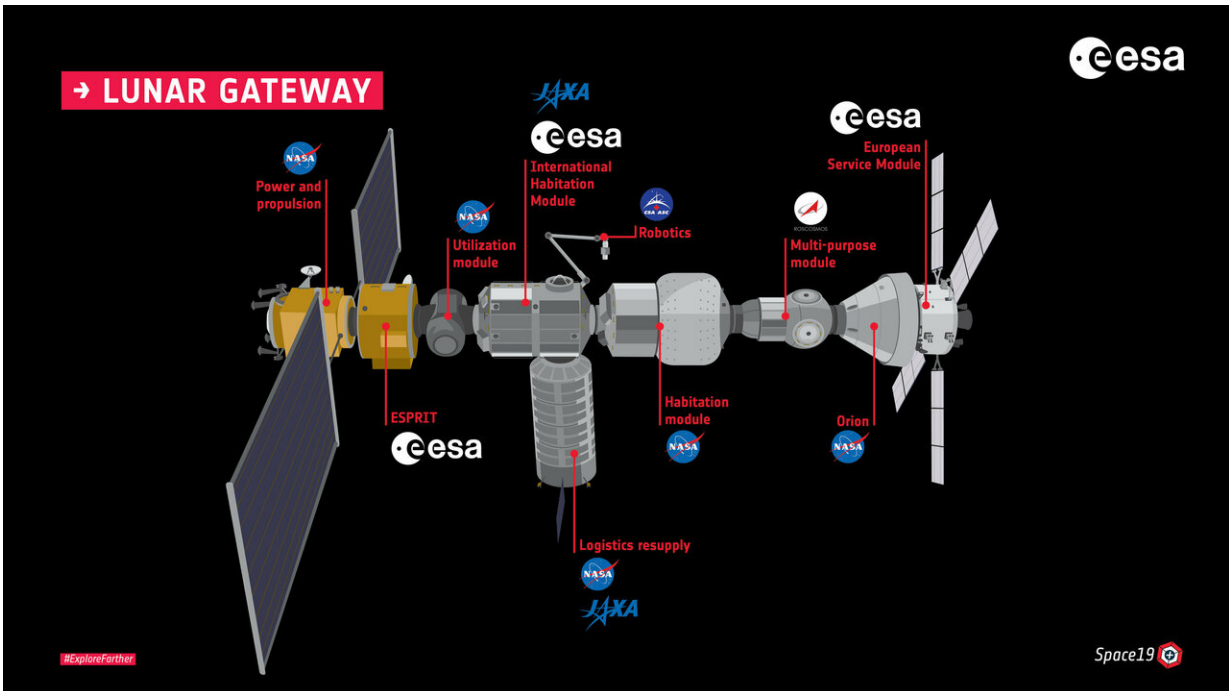
The Multilateral Coordination Board, which oversees the management of the Space Station, stressed its common hope for the Gateway to open up a cost-effective and sustainable path to the moon and beyond.

The announcement comes after several years of extensive study among space agencies who have developed a technically achievable design. The partnership includes European countries (represented by ESA), the United States (NASA), Russia (Roscosmos), Canada (CSA) and Japan (JAXA).

"We are getting ready, together, to send humans farther into the Solar System than ever before. The lunar Gateway is the next big step in [human exploration](#) and we are working to make Europe a part of it," says David Parker, ESA's human and robotic exploration director.

NASA's Orion spacecraft will transport astronauts to the Gateway. Orion is powered by the European Service Module, which will give the crewed vehicle a final push to inject it into translunar orbit.

Almost 50 years after the first human landing on the moon, the Gateway will support human and robotic access to the lunar surface. "We will extend the presence of humans one thousand times farther into space compared to today's International Space Station," adds David Parker.



The space Gateway is the next structure to be launched by the partners of the International Space Station. During the 2020s, it will be assembled and operated in the vicinity of the Moon, where it will move between different orbits and enable the most distant human space missions ever attempted. Placed farther from Earth than the current Space Station – but not in a lunar orbit – the Gateway will offer a staging post for missions to the Moon and Mars. Like a mountain refuge, it will provide shelter and a place to stock up on supplies for astronauts en route to more distant destinations. It will also offer a place to relay communications and can act as a base for scientific research. The Gateway will weigh around 40 tonnes and will consist of a service module, a communications module, a connecting module, an airlock for spacewalks, a place for the astronauts to live and an operations station to command the gateway's robotic arm or rovers on the Moon. Astronauts will be able to occupy it for up to 90 days at a time. Credit: NASA/ESA

The Gateway will offer a platform for scientific discovery in [deep space](#) and build invaluable experience for the challenges of future human

missions to Mars.

Nearly 400 000 km away from Earth, its orbit will provide excellent visibility of both the Earth and the moon's surface allowing it to relay communications.

According to the board, the Gateway "will stimulate the development of advanced technologies, expand the emerging space economy, and continue to leverage the societal benefits of [space](#) exploration for citizens on Earth."

Canada has already confirmed its commitment to join NASA in the Gateway and contribute advanced robotics to the project, making the Canadian Space Agency the first partner agency.

ESA's potential involvement includes the ESPRIT module to provide communications and refueling of the Gateway and a science airlock for deploying science payloads and cubesats.

ESA is also studying its involvement in the international habitation module working with the international partners.



This image of the Moon was taken by amateur photographer Dylan O'Donnell as the International Space Station passed by at 28 800 km/h. At such speeds the weightless research laboratory was visible for only about a third of a second before returning to the dark skies. Credit: Dylan O'Donnell

A possible commitment towards building Europe's contributions to the Gateway will be one of the key decisions to be made by Ministers at the Space19+ Conference in November 2019.

A springboard to the future

The Gateway would not be possible without the International Space Station. After two decades of successful operations in orbit and a solid

partnership on Earth, the Space Station is the worlds largest cooperative programme in science and technology.

With more than 100 countries having used it for research and education activities, the partners remark that the Space Station is also nurturing a growing economy of business and services in Earth's orbit.

"This international team has not only built the Space Station and risen to the challenges of its day-to-day dynamic operation, but – most importantly – delivered tangible benefits to humanity," says the statement.

Provided by European Space Agency

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