

Leonardo awarded a contract by ESA to build PROSPECT's drill and mini scientific lab to uncover the Moon's secrets

- **Leonardo has signed a €31.5 million contract with ESA to build PROSPECT for the Luna-27 mission**
- **PROSPECT will analyse the Moon's subsoil in preparation for human exploration**
- **Leonardo confirms its leadership in space robotics technologies in international missions such as Rosetta and ExoMars2020**

Nerviano, 30 January 2020 – Leonardo announced today the signing of a €31.5 million contract with the European Space Agency (ESA) to build PROSPECT, the onboard drill and miniature lab for the Luna-27 lander, a mission by ESA and Roscosmos, with support from the Italian and UK Space Agencies. Following the 2016 contract for the initial development model, Leonardo, has now been awarded the task to work on the detailed design and manufacturing of PROSPECT's flight model. More than 50 years after the first man landed on the Moon in 1969, Leonardo starts 2020 with an exciting challenge for its space robotic business.

Leonardo's PROSPECT (*Package for Resource Observation, in-Situ analysis and Prospecting for Exploration Commercial exploitation and Transportation*) will be looking for water ice, volatiles and other chemicals under the surface, on the South polar regions of the Moon, where extreme cold temperatures – up to -150 °C – can increase chances to find icy volatiles resources.

“There are vast regions of the Moon that are unexplored, the PROSPECT drill will allow scientists to better understand the terrain and prepare missions where lunar soil can be used to create oxygen or fuel for example” **said ESA's Director of Human and Robotic Exploration David Parker**, “the drill is one component of many exciting missions ESA is working on with international partners to go forward to the Moon.”

“The contract for the development and production of PROSPECT is further evidence of Leonardo's engineering and design capabilities of complex space systems which build on the experience and know-how of the drilling systems developed for the Rosetta and ExoMars missions,” **said Marco De Fazio, Deputy managing director Electronics division, Electronics Italy business unit in Leonardo, adding:** “Leonardo's leadership in mission critical key payload and equipment spans different productions, many of which come from the Nerviano plant, such as atomic clocks, robotic systems and photovoltaic panels for space exploration, observation and navigation missions.”

PROSPECT is composed of two elements: a robotic drill (**ProSEED**) and a miniature laboratory with a suite of scientific instruments (**ProSPA**). This complex system will drill into the Moon's soil to depths of **up to one meter** taking material samples to distribute to scientific instruments aboard

for analysis. PROSPECT includes collaboration with the **UK's Open University** which leads the consortium responsible of the ProSPA scientific laboratory.

The new scientific results, which will be obtained also thanks to Leonardo's PROSPECT, will provide valuable resources to pave the way for future lunar exploration missions.

Note to editors

About Leonardo's space robotics

Leonardo's drilling technology also contributes to other important international missions.

The space mission Rosetta was equipped with Leonardo's sophisticated drill, which had the purpose to perforate the depth of the comet's surface up to 30 centimeters and acquire samples. The mission aimed to investigate the origin of comets and understand the origin of the solar system. More recently, the same drill has been developed for the **ExoMars2020 space mission**. The drill, for the first time in history, will dig down the Red Planet's surface, as far as 2m, searching for any trace of life. The drill is designed to work in extreme conditions, at a temperature of 80 degrees below zero and approximately 20 rock samples will be collected.

Following drill design and manufacturing for a comet and Mars, Leonardo will now develop **PROSPECT's drill for the Moon's mission Luna-27**.

About Luna missions

The mission is performed in cooperation between ESA and Roscosmos to go to the Moon on their Luna missions. Three Luna missions, two landers and one orbiter, are planned for the next years and European technology, science and infrastructure will be part of the adventure.

Luna-25 will be the first to land on the Moon and it will take images of the terrain with a specific camera. The data collected by this camera will be used to prepare for ESA's next challenge: high-precision Moon landing. Two years after Luna-25, the Luna-26 orbiter will be sent to lunar orbit for remote scientific measurements and as a possible communications relay for the next lander mission. The Luna-27 lander, carrying the PROSPECT instrument, will be launched one year after Luna-26 and will be larger than its predecessor Luna-25. It will fly to a challenging landing site closer to the lunar South Pole.