



As our closest celestial neighbour, the Moon has captured the imagination of the world for centuries. America benefitted both politically and academically from the inspirational value of the Apollo programme, and there is a huge opportunity for Europe to take the lead with inspiring the next generation of scientists, engineers and artists (and more) with a renewed focus on the Moon. Educational, multimedia and traditional media campaigns can be used to tell the story of a new era of exploration, developed hand-in-hand with private companies.

PTScientists GmbH is an aerospace engineering company and unique in Europe as the only privately owned and funded SME that is developing a commercial lunar payload delivery system. The company was founded in 2008 and has been developing its spacecraft and lander concept, ALINA- autonomous landing and navigation module, since 2010 with a goal of showing that lunar exploration is commercially viable.

PTScientists is already working on a highly innovative technology demonstration mission that aims to be the first private mission to land on the Moon. "Mission to the Moon" will include several key proof-of-concept elements, with a view to developing a sustainable lunar transport and communications infrastructure, which may also be used to further humanity's exploration ambitions. The company is headquartered in Berlin, Germany with 45 fixed employees and a team of part-time contributors. The team behind the mission also features some senior engineers of the original Apollo program such as Jack W. Crenshaw who was in charge of the flight trajectories for Apollo. Technical cooperation partners include Audi AG, Vodafone Germany and Nokia Bell Labs, the German Aerospace Center (DLR), the European Space Agency (ESA) as well as technical universities in Germany and Austria.

The team composition does not only include technicians and engineers, but also a 1000 m<sup>2</sup> assembly hall for our lunar lander (ALINA) and ALQ rover components and a test bed with sand analogous to moon regolith to be able to carry out tests with the moon rover. This sand's composition is similar to lunar regolith and the maximum slope and grip of the wheels can be simulated.

In our own mechanical workshop, we can perform cutting metalworking's, have an electronic laboratory, a large integration room as well as a test facility for a climate control. Our professional clean room will be ISO class 8 and is currently under construction.

PTScientists is also developing its own mission control centre (MCC) and ground segment software in partnership with SCISYS, and guidance, navigation and control (GNC) software with the University of Würzburg and the German space agency (DLR). Our onboard software for ALINA and the Audi lunar quattro rovers runs on the RODOS operating system, selected for its ability to facilitate redundancy. We are using AI Solution's FreeFlyer as a base framework for programming our mission simulations for orbital determination and flight dynamics. Thus, our Partner for video broadcasting and test procedures of voice in the loops simulation is RIEDEL.