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INVESTMENT AND MONETIZATION OF EARLY STAGE LUNAR SURFACE EXPLORATION MISSIONS

Abstract

NASA and its international space partners are moving ahead on plans to return to the Moon, based on the US Space Policy Directive 1 and the goal of accomplishing a new human landing in the South Polar region by 2024. International agency partners are signing up to contribute to the overall mission architecture and contribute elements and logistics support to the Lunar Gateway, which will provide an operations and transit base for lunar surface missions. As part of the lunar exploration policy, NASA has initiated the Commercial Lunar Payload Services (CLPS) program for robotic landing and surface exploration missions beginning in the second half of 2021 and continuing with several missions per year over the next seven year. The CLPS program is being implemented through innovative commercial partnerships with multiple companies buying the lunar landings as a service, similar to how NASA procures ISS cargo and crew flight services. The CLPS program has created a commercial marketplace worth almost $3 billion over the next 7 years, and has dramatically lowered the cost of getting to the lunar surface for commercial missions due to rideshare opportunities with the NASA CLPS contractors.

Spacebit is planning a series of commercial lunar surface exploration missions using CLPS lander rideshare opportunities, beginning with the Astrobotic Peregrine first mission in the fall of 2021. This mission will be a technology demonstration of the Asagumo 1U Cubesat sized walking rover. Future missions in 2022 and 2023 will increase the range of the rover's surface exploration through the use of a wheeled Mother Ship rover, with the ultimate goal of sending a swarm of Asagumo rovers into a lunar lava tube to map the cave interior with HD video and 3D LIDAR scanners to assess the suitability for future permanent human habitation.

The investment in Spacebit Mission One is fully funded through direct investment from the Founder and family office investments. Future missions will be funded through sponsorships, strategic partnerships, and outside VC funding. Monetization of the early missions will be accomplished primarily through sponsorship contracts, while later missions which map and provide assay grade lunar resource ground truth data will attract VC funding in part through the establishment of lunar property rights claims as provided for in US and Luxembourg space law. This paper will describe the Spacebit business model of commercial lunar surface exploration as part of a long term roadmap to commercial lunar resource development.