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New Business Models for Space Exploration (14)
New Business Models for Space Exploration (1)

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A FIXED-PRICE EXPLORATION SERVICES MODEL WITH COMMERCIAL SUPPLEMENT

Abstract

Astrobotic Technology will present its business model for a series of robotic lunar expeditions, based on fixed-cost payload deliveries for space agencies and novel methods of public involvement that offload part of the cost of exploration to commercial funders.

National space agencies constitute both the largest identified demand sector for exploration services and the sector most likely to make commitments to exploration projects four to five years prior to launch. Commercial customers typically commit to new projects only one to two years in advance of their debut, which is a mismatch with the timing required to undertake a robotic space mission. Funds to start private sector initiatives also could come from investors; however, most investors avoid start-ups that depend primarily on government revenue – the actions of a single customer are likely to be less reliable than those of a broader market. SpaceX, for example, attracted venture capital only after it signed a 278 million USD NASA contract for development of a commercial ISS cargo delivery system.

A space agency that wants to exploit the lower costs of commercial robotic expeditions therefore must be willing to sign a binding contract early in a mission's development. This both enables a company to raise investment capital and signals to potential private-sector markets that the project has passed the due-diligence tests of a sophisticated customer. In return, the space agency gets services at a fixed price. In the case of Astrobotic Technology's price for lunar payload delivery, the cost for a major robotic lunar expedition to prospect for polar water is less than one third that of a traditional approach.

The dramatically lower cost to the space agency stems from several factors. The most obvious is the fixed-price culture, where every dollar saved is profit so long as it doesn't materially impact mission success. As important for the future of space exploration is the motivation to draw in additional, complementary customers for a mission. For example, when a technology company sponsors special corporately branded data feeds from an expedition, the total mission cost is shared with a new commercial source, and public outreach is transformed from a burdensome extra cost into a revenue stream.

The paper will detail the magnitude of revenue expected from government and various private sectors, as well as the factors affecting decision-making in each sector.