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DEVELOPMENT (D3)Strategies & Architectures as the Framework for Future Building Blocks in Space Exploration and
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DEEP SPACE INDUSTRIALIZATION: KEY TO SUSTAINABLE EXPLORATION, DEVELOPMENT
AND SETTLEMENT OF THE SOLAR SYSTEM**Abstract**

Recent developments related to deep space exploration and development have raised the question of whether the paradigm shift that many people have been expecting, from space exploration to space development and industrialization, is finally occurring. These recent events include Space Exploration Technologies (SpaceX) announcement that they have been contacted by two wealthy individuals who would like to travel around the Moon within the next two years and a recently reported story of Jeff Bezos' proposal to the Trump Administration to offer cargo delivery services to the Lunar surface by mid 2020 as part of a public/private partnership with NASA. In addition Bob Bigelow, founder of Bigelow Aerospace, has announced the capability and desire to put a crewed space station in orbit around the Moon in this same 2020 time period. Moon Express has also recently announced that they are fully funded for their attempt in land their robotic probe on the lunar surface at the end of this year, not only to win the Google Lunar XPrize but also to jump start their lunar mining efforts.

On the international front the Grand Duchy of Luxembourg has established a 200 million euro fund to invest in space mining companies with the aim of making Luxembourg the European leader in deep space commerce. To date they have made investments in two companies; Deep Space Industries and Planetary Resources both of which were established to prospect and mine near Earth asteroids. Other countries such as India, China and even Israel are eying this high frontier for deep space commerce.

This paper will explore how these developments could help enable this deep space industrialization and jump start a thriving deep space economy. The role that NASA and the US government can and should play in this effort and the role of public/private partnerships will also be discussed. Finally, what these developments could lead to over the next 10-15 years will be analyzed and the potential size of this deep space economy will be estimated.