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WHAT IS COMMERCIAL SPACE? AND WHY DOES THAT MATTER?

Abstract

The term “commercial space” is used frequently to describe the activities of new private companies engaged in space. What makes some activities in the space sector commercial and other government, and why is this an important distinction to understand? What distinguishes SpaceX and Blue Origin, widely considered commercial companies, from Lockheed Martin, traded on the stock market, but hardly ever viewed as commercial?

In this paper, we use inductive, grounded-theory building techniques to develop an operational definition of commercial space, and examine why having an accurate definition is important. While we review scholarly and policy definitions of commercial space, our approach is to use prevailing practice to develop a useable and operational definition. To do so, we conducted case studies of commercial activities in five areas:

1. Launch. There is a growing number of companies proposing a diversity of approaches for launching payloads in space. Many of these companies are entirely financed by private sources, and aim to have private users as their customers.

2. Space situational awareness (SSA). For decades, as with the launch sector, SSA was the domain of governments. In recent years, companies have begun to develop products and services using internal and VC funding, and selling them to both government and private sector users.

3. On-orbit service, assembly and manufacturing (OSAM). Most OSAM in space today is government-led. However, some companies, both established and new have begun to offer on-orbit services for both GEO operators and government customers.

4. Commercial space in China. In 2014, the Chinese government released official policy that encouraged private investment in space. There is now a growing number of commercial space companies in China that purport to serve an international market.

5. Space Nuclear Power. Some companies in the United States have raised private funds to develop space nuclear power and propulsion systems. These companies expect the early users of their systems to be government.

We use the emergence of commercial activity in these five areas to develop a framework to define commercial space. The framework has two dimensions – who takes the risks (e.g., by investing risk capital in companies promoting a risky idea) and who is the customer (whether only government, or both private buyers as well as the government). Using this 2x2 matrix, we describe the 4 types of companies in the space sector, identifying which we believe to be commercial and why.