

30th IAA SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS (E3)  
The Demand Side of the Space Economic Equation: Understanding and Evaluating the Changing Market  
Dynamics in Space Activities (3)

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TRENDS IN THE GLOBAL SMALL SATELLITE ECOSYSTEM

**Abstract**

Activity in the small satellite industry, especially in the prior three years, has grown as new actors and nations have joined the evolving market globally in both the private and public sector. Growth in the sector has been driven, in part, by growing capabilities and falling costs of smallsats, principally enabled by the miniaturization of technology for the small satellite platform, increased data processing capabilities, the ubiquitous presence of GPS enabling location and attitude determination, improvements in ground system costs and signal processing capabilities, and finally the deployment of inexpensive COTS parts. We undertook an effort to characterize the growing global small satellite ecosystem by identifying 15 sectors of small satellite activity. A database was developed with nearly 600 global actors, to identify participation across the small satellite industry. The database was paired with expert interviews to provide further analysis of the evolving role key actors play in each sector of the small satellite ecosystem.

Based on our analysis, the paper will segment actors in the small satellite ecosystem into 3 categories. The first category includes the value chain, with 9 sectors in upstream, midstream and downstream activities. Growth in the industry's upstream and downstream market value, alongside the projected four-fold increase in number of small satellite assets projected to be launched in the next 10 years, is currently driven by a variety of commercial actors. The second category includes the users and consumers of small satellite data, insights and imagery. Finally a third category includes actors that provide the foundation necessary for any innovation-reliant ecosystem. They include research and development, funding sources and legal and regulatory support. Using this model, this paper will describe emerging trends in each of the categories with focus on the value chain.

The level of activity varies across the ecosystem by actor. Whereas some actors are vertically integrated and engage across sectors by focusing their production (upstream) and operational (midstream) activities in-house, others focus on specific sectors of the ecosystem. Overall the model will be used to provide analysis on the globalization of the rapidly growing and evolving industry.