

BUSINESS INNOVATION SYMPOSIUM (E6)
New Space Industry Applications (3)

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DISRUPTION THEORY APPLICATION TO COMMERCIAL CARGO AND CREW SPACE
TRANSPORTATION MARKETS

Abstract

Recent orbital space missions by private companies are the result of an increasing level of interest and participation in those efforts by certain national space agencies.

Specifically, the Commercial Orbital Transportation Services (COTS) initiated by the National Aeronautics and Space Administration (NASA) in 2004 is accelerating the development of capabilities of two companies, Space Exploration Technologies (more commonly known as “SpaceX”) and Orbital Sciences Corporation. With the successful execution of each programmatic milestone comes an increased level of visibility and scrutiny by governmental appropriators who attempt to determine the appropriate and desirable level of future support provided to these programmatic goals. A portion of the requested oversight comes in the form of market assessments performed using various methodologies.

This report follows a research-based methodology, attributed to Dr. Clayton Christenson of Harvard Business School sometimes referred to as the Disruptive Innovation Theory, to characterize industry-level structures and drivers based on a significant amount historical business data to support the theory’s tenets. Utilization of research-based theories provide advantages of academic origins, peer review and continuous refinement over time that ensure comprehensive treatment of the subject bounded by the theory’s known limits.

In this report, Christensen’s Disruptive Innovation Theory is used as the basis of an assessment of the current global commercial space transportation Earth to Orbit (ETO) market. Industry-level structures characterized in this report include a discussion of supplier firms categorized as established or new-entrant, whether their services are considered sustaining innovations or disruptive, and if the latter, which type of disruptive innovation (low-cost or new market). Demand is categorized as high-end market customers or low-end market customers and the basis of demand for each category of customer is also evaluated. The ETO market is also evaluated, not by market segmentation based on types of vehicles used or their desired final orbit, but by using an attribute based characterization that identifies the “job” each service is “hire” to perform.