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DISRUPTIVE INNOVATIONS IN SATELLITE MISSIONS: A MANAGERIAL PERSPECTIVE

Abstract

The rapid financial growth enjoyed by space industry activities in the Earth orbits is driven by changes in market dynamics rather than technological breakthroughs. Context-specific operational characteristics including high capital costs, long breakeven timeframes, and strict quality requirements have accelerated the shift from exploratory to exploitative business models, leading to an inflow of capital but a lack of disruptive innovations. If no high-level change is implemented, market conditions will deteriorate, and economic growth will plateau. In this paper we explore the underlying drivers of technological stagnation in the orbital space ecosystem by leveraging the theories of disruptive technologies (DTs) and absorptive capacity (ACAP), thereby proposing strategic alliances as solutions for incumbents and new players to increase their innovative potential. Specifically, we take a deep dive into the realm of satellite software and advance an implementation plan for the integration of automation and artificial intelligence (AI) technologies, enablers for next generation spacecraft.

Keywords: disruptive innovation, absorptive capacity, artificial intelligence, automation, space economy