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ENABLING RESPONSIVE LAUNCH: WHAT THE DARPA LAUNCH CHALLENGE CAN TEACH FOR TECH AND REGULATION

Abstract

This paper analyzes the impacts of—and lessons, both programmatic and technical, to be learned from—the ongoing Defense Advanced Research Projects Agency Launch Challenge ("DLC") on both small launch operations and the legal regimes that govern them. The DLC seeks to solve the problem of providing responsive, flexible access to space. As stated in DARPA's Guidelines, the contest "is intended to be reflective of future needs for tactical use of space, where the details of the launch requirements are not known until they are dictated by mission needs." Such an operational and technical shift away from reliance on traditional launch models, executed properly, could open the door to high-volume, sustainable, low-cost access to space—a paradigm shift necessary to unlock the full potential of small satellites—as well as enable a substantially more responsive launch architecture. Lessons learned from the DLC are therefore of critical importance to all stakeholders, commercial and governmental.

In this challenge, competitors must launch two small payloads, operating on very little information and a short timeline. Thirty days before launch, DARPA will provide the launch site location, followed by information on payload and orbit just fourteen days before launch. Teams must then quickly integrate and successfully launch the payload. Shortly after, competitors must perform the exercise a second time under similar time and information constraints. The team who most effectively performs both launches wins a prize of 10 million US dollars. Several distinct technologies appear promising.

In addition to encouraging new rapid launch capabilities, the challenge presents interesting questions about launch regulation, and the answers could set a precedent for licensing moving forward. For example, the DLC requires that its applicants obtain Federal Aviation Administration launch licenses. Acquiring an FAA launch license comes with its own set of challenges, and that process is further complicated for DLC applicants, who must obtain a license without key information like the launch site, trajectory or payload. The cooperative efforts between DARPA and FAA to issue licenses and guidance for the DLC could become a point of reference for future regulation. DARPA has already discussed regulatory reform in conjunction with the competition, targeting issues like speed of processing and blanket licensing. As the DLC is underway, the FAA will be reexamining its launch licensing regulations, starting with a rulemaking scheduled to begin at the end of March 2019. This paper will address any legal developments resulting from the competition.