



Highlights of [GAO-06-449](#), a report to the Subcommittee on Strategic Forces, Committee on Armed Services, House of Representatives

## Why GAO Did This Study

For more than two decades, the Department of Defense (DOD) has invested heavily in space assets to provide the warfighter with mission-critical information. Despite these investments, DOD commanders have reported shortfalls in space capabilities.

To provide tactical capabilities to the warfighter sooner, DOD recently began developing TacSats—a series of small satellites intended to be built within a limited time frame and budget—and pursuing options for small, low-cost vehicles for launching small satellites.

GAO was asked to (1) examine the outcomes to date of DOD's TacSat and small, low-cost launch vehicle efforts, (2) identify the challenges in pursuing these efforts, and (3) determine whether experiences with these efforts could inform DOD's major space system acquisitions.

## What GAO Recommends

GAO is recommending that DOD assign accountability for developing and implementing a departmentwide strategy for pursuing low-cost tactical capabilities—both satellite and launch vehicles—and identify corresponding funding. In commenting on the report, DOD agreed with the recommendation.

[www.gao.gov/cgi-bin/getrpt?GAO-06-449](http://www.gao.gov/cgi-bin/getrpt?GAO-06-449).

To view the full product, including the scope and methodology, click on the link above. For more information, contact Michael J. Sullivan at (202) 512-4841 or [sullivanmj@gao.gov](mailto:sullivanmj@gao.gov).

## SPACE ACQUISITIONS

# DOD Needs a Departmentwide Strategy for Pursuing Low-Cost, Responsive Tactical Space Capabilities

## What GAO Found

Through effective management of requirements and technologies and strong leadership, DOD was able to deliver the first TacSat satellite in 12 months and for less than \$10 million. The Office of Force Transformation, TacSat 1's sponsor, set requirements early in the satellite's development process and kept them stable. DOD modified existing technologies for use in space, significantly reducing the likelihood of encountering unforeseen problems that could result in costly design changes. The satellite was also built within DOD's science and technology environment, which enabled service laboratory scientists to address problems quickly, inexpensively, and innovatively. The vision and support provided by leadership were also key to achieving the successful delivery of TacSat 1. DOD has also made progress in developing three additional TacSats and is working toward developing a low-cost launch vehicle available on demand.

Despite this achievement, DOD faces several challenges in providing tactical capabilities to the warfighter sooner. First, DOD has yet to develop a low-cost, small launch vehicle available to quickly put tactical satellites, including TacSat 1, into orbit. Second, limited collaboration between the science and technology and the acquisition communities—as well as the acquisition community's tendency to expand requirements after program start—could impede efforts to quickly procure tactical capabilities. Securing funding for future TacSat experiments may also prove difficult because they are not part of an acquisition program. Finally, DOD lacks a departmentwide strategy for implementing these efforts, and because key advocates of the experiments have left DOD, it is unclear how well they will be supported in the future.

Regardless of these challenges, DOD's experiences with the TacSat experiments thus far could inform its major space system acquisitions. DOD's approach to developing the TacSats—matching requirements to available resources, using proven technologies, and separating technology development from product development—reflects best commercial practices that lead to quicker delivery with less risk. According to some DOD officials, the TacSats and small, low-cost launch vehicles—once they are developed—could also provide an avenue for large space system acquisitions to prove out technologies in the space environment, something DOD has avoided because of the high cost of launching such experiments. These officials also believe that giving space professionals the opportunity to manage small-scale projects like TacSats may better prepare them for managing larger, more complex space system acquisitions. Finally, these officials noted that building small-scale satellite systems and launch vehicles could create opportunities for small, innovative companies to compete for DOD contracts and thereby broaden the space industrial base.