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ANALYSIS OF UNITED STATES POLICY AND LEGAL IMPEDIMENTS TO ON-ORBIT
SATELLITE SERVICING ACTIVITIES

Abstract

Communications satellites play a vital role in supporting today's commercial and military information infrastructure backbone. When such satellites fail, they generally require costly launch and replacement with new systems. While many of the current inactive satellites still have working components, they cannot be reused whole or in part. The development of on-orbit satellite servicing (OOS) capabilities may offer many foreseeable benefits, such as an eventual shift to on-orbit satellite assembly, the ability to more quickly upgrade or repair satellites, and a greater return on investment for the U.S. Government and commercial stakeholders through the reuse of the most valuable satellite components. Initiatives such as the Defense Advanced Research Projects Agency's Phoenix Program and ViviSat's Mission Extension Vehicle aim to develop and demonstrate technologies that can enable a shift to Geostationary Orbit OOS mission capabilities. Beyond the business case and technological challenges, several policy impediments exist which may hinder the development of such capabilities. The current lack of domestic and international norms and standards for OOS creates uncertainty in areas including third-party verification, transparency and confidence building measures, and security and proprietary concerns related to imaging of third-party satellites. For OOS technologies to reach their full potential, it is necessary to determine how numerous stakeholders - national governments, agencies, intergovernmental organizations and industry - can communicate and collaborate successfully in order to identify and service assets owned and operated by different organizations and countries. This paper will identify a list of actionable recommendations for actors in the United States' OOS sector. It will articulate clear arguments for how these policy actions can be integrated into servicing mission functions by both the US Government and the broader industry.