

# **Breaking the Vicious Start-Stop-Restart Cycle**

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## **Abstract**

NASA's history is built on a foundation of can-do strength, while pointing to the Apollo Moon missions in the 1960s and 1970s as its apex — a sentiment that often overshadows the potential in store. The chronicle of America's civil space adventure is scattered with programs that got off to good starts with adequate resources and vocal political support but that never made it past a certain milestone review, General Accountability Office report, or Congressional budget appropriation. Over the decades since the fielding of the Space Shuttle in the early 1980s, a start-stop-restart cycle has intervened due to many forces. Despite this impediment, the workforce has delivered feats such as the International Space Station and numerous Shuttle and science missions, which reflect a trend in the early days of the Exploration Age that called for massive infrastructure and matching capital allocations. In the new millennium, the aerospace industry must respond to transforming economic climates, the public will, national agendas, and international possibilities relative to scientific exploration beyond Earth's orbit. Two pressing issues — workforce transition and mission success — are intertwined. As this briefing will show, U.S. aerospace must confront related workforce development and industrial base issues head on to take space exploration to the next level. This briefing also will formulate specific strategies to equip space engineers to move beyond the seemingly constant start-stop-restart mentality to plan and execute flight projects that actually fly.