February 2016

NASA

Preliminary Observations on Major Acquisition Projects and Management Challenges

GAO Highlights

Highlights of GAO-16-461T, a testimony before the Committee on Science, Space, and Technology, House of Representatives

Why GAO Did This Study

The proposed Space Leadership Preservation Act of 2015, which includes provisions related to NASA's leadership structure, budget development, and contracting authorities, would affect the way NASA develops its vision for space exploration and executes the projects that implement it. It could also have implications for NASA's acquisition management, which is an area on GAO's High Risk list. In March 2015, GAO found that projects continued a general positive trend of limiting cost and schedule growth, maturing technologies, and stabilizing designs, but that NASA faced several challenges that could affect its ability to effectively manage its portfolio.

This statement provides our preliminary observations on (1) the cost and schedule performance of NASA's portfolio of major projects and the implementation of product development best practices on these projects and (2) management challenges. This statement also provides observations on the proposed legislation. This statement is based on ongoing work to be published in March 2016 and GAO's February 2015 High Risk Update, as well as GAO's extensive prior body of work on NASA's major acquisitions.

What GAO Recommends

GAO is not making any new recommendations in this statement, but has made recommendations in prior related reports, which NASA has not yet fully addressed.

View GAO-16-461T. For more information, contact Cristina Chaplain at (202) 512-4841 or chaplainc@gao.gov.

What GAO Found

GAO's ongoing work indicates that the National Aeronautics and Space Administration (NASA) has made progress over the past 5 years in a number of key acquisition management areas, but it faces significant risks in some of its major projects. On the positive side, the cost and schedule performance of NASA's portfolio of major projects in development has improved and most current projects are adhering to their committed cost and schedule baselines. In addition, NASA has maintained recent improvements in the implementation of key product development best practices, which can help reduce risk in projects. Although NASA's overall performance has improved, GAO's preliminary results show that NASA has rebaselined a major project for each year 8 out of the last 9 years, which means the projects experienced significant cost or schedule growth. This often occurs as projects prepare to begin system assembly, integration, and test; nine projects will be in that phase of development in 2016, including the Orion Multi-Purpose Crew Vehicle (Orion) and Space Launch System, which are human spaceflight programs with significant development risks.

As NASA continues its efforts to reduce acquisition risk, GAO's ongoing and prior work highlights three areas of management challenges that, if addressed, will help the agency appropriately direct future investments:

- **Implementing Management Tools.** NASA has continued to implement improved project management tools to manage acquisition risks, but these efforts have not always been consistent with best practices in areas such as cost estimating or fully addressed GAO's prior recommendations. For example, NASA has made progress rolling out earned value management (EVM)—a key project management tool—at its centers but has not implemented formal EVM surveillance, which is considered a best practice by both NASA and GAO.
- **Demonstrating Sustained Cost and Schedule Performance.** A key management challenge that NASA faces is whether the improvement in the cost and schedule performance GAO has seen in the agency's overall portfolio of major projects can be translated to large, recently baselined projects that have been added to the portfolio. This includes its human spaceflight projects, which are at critical points of implementation.
- **Long-Term Planning and Stability.** NASA has established cost and schedule baselines for Space Launch System, Orion, and Exploration Ground Systems—a program that is developing systems and infrastructure to support assembly, test, and launch of the Space Launch System and Orion—but the baselines provide little visibility into long-term planning and costs. NASA recently issued a strategy for its journey to Mars, but the document does not provide details on future exploration missions making it difficult to understand NASA's vision for what type and how many missions it will take to get to Mars.

The proposed Space Leadership Preservation Act of 2015 is aimed, in part, at achieving greater stability at NASA. From an acquisition perspective, GAO's prior work indicates that one of the most important factors for achieving stability is having a sound business case that balances program requirements and resources, such as technology, funding, and time.