May 2005

NASA

More Knowledge Needed to Determine Best Alternatives to Provide Space Station Logistics Support

GAO Accountability·Integrity·Reliability

Highlights

Highlights of GAO-05-488, a report to congressional requesters

Why GAO Did This Study

The National Aeronautics and Space Administration's (NASA) space shuttle fleet has been key to International Space Station operations. Since the grounding of the fleet in February 2003, Russia has provided logistics support. However, due to the limited payload capacity of the Russian space vehicles, on-orbit assembly of the space station stopped.

In May 2004 and in February 2005, NASA testified before the Congress that it had assessed using alternative launch vehicles to the space shuttle for space station operations. NASA concluded that using alternatives would be challenging and result in long program delays and would ultimately cost more than returning the space shuttle safely to flight. Yet uncertainties remain about when the space shuttle will return to flight, and questions have been raised about NASA's assessment of alternatives. GAO was asked to determine whether NASA's assessment was sufficient to conclude that the space shuttle is the best option for assembling and providing logistics support to the space station.

What GAO Recommends

GAO is recommending that NASA take action to ensure that its current assessments of alternatives for providing logistics support are comprehensive and fully documented and that the assessments are completed before investments are made in commercial space transportation.

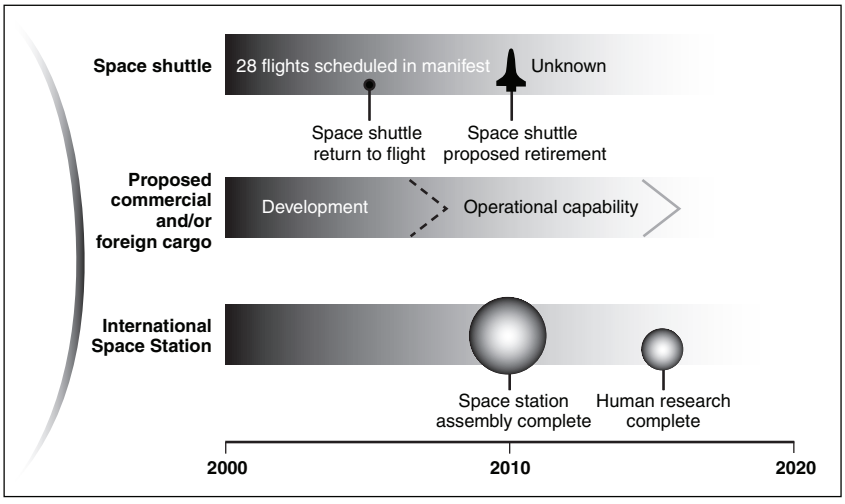
www.gao.gov/cgi-bin/getrpt?GAO-05-488.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Allen Li at (202) 512-4841 or lia@gao.gov.

What GAO Found

NASA's 2004 assessment identified significant challenges associated with using alternative launch vehicles for space station assembly and operation. According to previous studies and our discussions with industry representatives, these challenges would likely preclude using alternative vehicles for assembly missions. However, NASA's assessment was insufficient to conclude that the shuttle was the best option for logistics support missions prior to the proposed retirement of the space shuttle in 2010. NASA relied primarily on headquarters expertise to conduct the informal assessment, and while we recognize that the extensive experience of its senior managers is an important element in evaluating alternatives, NASA officials did not document the proceedings and decisions reached in its assessment. As a result, the existence of this assessment of alternatives cannot be verified, nor can the conclusions be validated.

NASA is currently evaluating responses from a September 2004 request for information from various commercial space transportation industries that could provide launch services to support space station operations, following retirement of the shuttle in 2010, until the station's planned retirement in 2016. NASA officials indicated that a commercial launch capability to support space station operations is possible prior to the proposed shuttle retirement in 2010, but stated that this capability would not eliminate any of the scheduled space shuttle flights. NASA is also re-examining its requirements for the type of scientific research to be conducted on the space station as well as the manifest requirements of the space shuttle. Combining the information gathered from commercial industry and a better definition of space station and shuttle requirements, NASA officials agree there is an opportunity to perform a more comprehensive assessment of alternatives, especially for logistics missions late this decade.



Source: NASA; GAO (presentation).