



**Federal Aviation  
Administration**

# **Creating a Thriving Commercial Marketplace in LEO**

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# 50 Years of Human Spaceflight

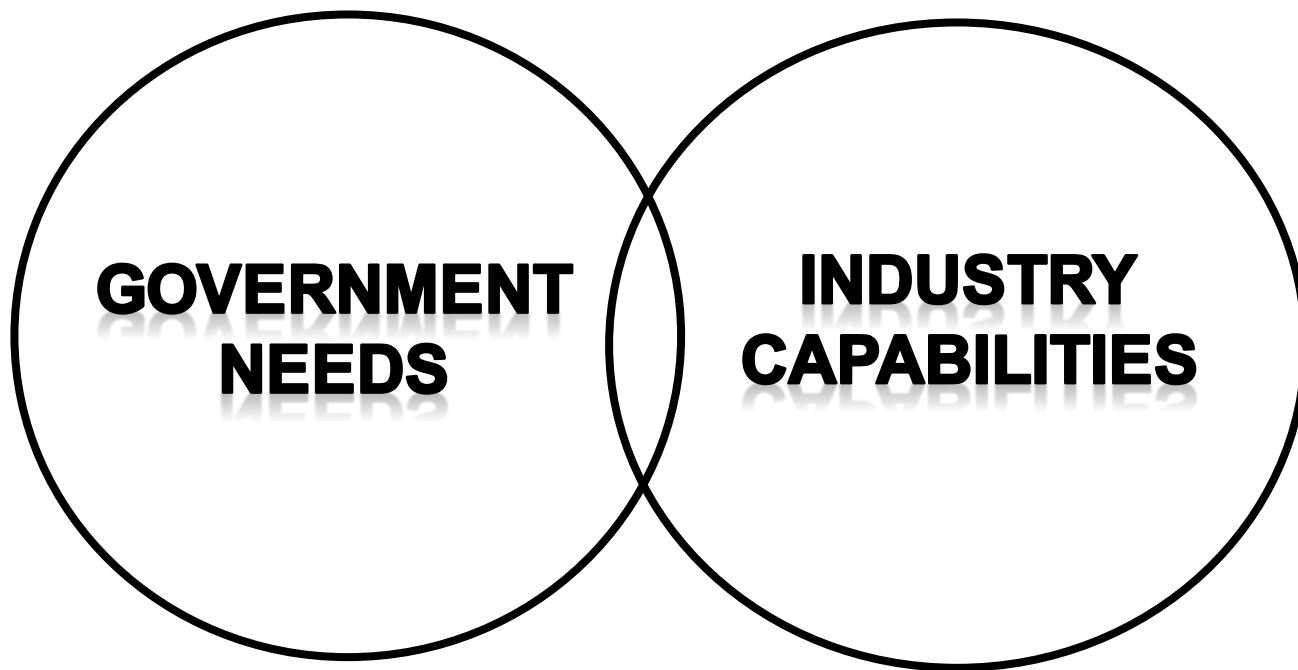


# Recent Presidential Commissions on Space

- Commission on the Future of the United States Aerospace Industry (Walker Commission) - 2002
- Aldridge Commission - 2004
- Augustine Committee - 2009

All called for increased reliance on private industry.

# An Opportunity for Progress





# What Government Brings to the Table

- Expertise
- Experience
- A continuing need for space products and services



# What Industry Brings to the Table

- The potential for lower cost
- The potential for increased innovation
- The potential for greater risk tolerance
- The potential for new customers and new markets
- The potential for new sources of funding



# Some Potential Markets

- Satellite Servicing
- In-Space Transportation (Space Tugs)
- Commercial Habitats and/or Space Stations
- Propellant Depots
- Space-Based Solar Power Generation
- In-space Resource Extraction

# Regulatory Issues

- Outer Space Treaty - Article VI
  - “The activities of non-governmental entities in outer space ... shall require authorization and continuing supervision by the appropriate State Party to the Treaty.”
- Third Party Safety Questions
  - Collision Avoidance
  - Mitigation of Orbital Debris
- Utilization of Space Resources
  - Property Rights
  - De-confliction to avoid harmful interference



# Financial Issues

- How can the government incentivize private investment?
  - Sponsoring research
  - Offering prizes
  - Offering tax incentives
  - Offering loan guarantees
  - Helping to pay for the development of new capabilities
  - Making a commitment to purchase services
- The Commercial Orbital Transportation Services (COTS) program could be a model for the development of other new markets

# Final Thoughts

- At some point in the future, there will be a wide range of commercial space activities in LEO, regardless of what the government decides to do today.
- However, the federal government, through its policies, partnerships, and investments, can positively influence and significantly greatly accelerate the timing of those activities.
- Many of the activities can be “Beta Tested” on, or in conjunction with, the ISS. Others would be “stand-alone.”
- The FAA is eager to work with NASA, and with industry, to encourage, facilitate, and promote the new activities.