KISS Workshop

Revolutionizing Access to Martian Surface

Short Course on Growth of Commercial Space
What does commercialization mean?

• Private enterprise involved in space related activities?
• Making a profit from space related activities?
• Private/public partnerships?
• Fixed price contracts?
• No government support? No government involvement?
NASA’s approach to commercialization

- Human Spaceflight
  - Mercury, Gemini, Apollo
  - Space Shuttle
  - International Space Station (ISS)
  - Orion, Space Launch System
  - Commercial Cargo to ISS
  - Commercial Crew to ISS

- Science Missions
  - Discovery class, New Frontier, Flagship missions
  - Launch Service Provider
  - Commercial Lunar Payload Services
Commercial Lunar Payload Services

• Master contract awarded to vendors to safely integrate, accommodate, transport, and deliver NASA payloads using contractor-provided assets, including launch vehicles, lunar lander spacecraft, lunar surface systems, and associated resources

• NASA wants to be a marginal customer, one of many payload providers. NASA does not manage or direct these commercial missions

• Purposely chose a ‘hands off’, very light touch management approach to allow commercial market to guide development and drive the mission process
  ➢ Not using NASA processes nor is NASA guiding development; we are accepting a much higher level of risk
  ➢ In return, NASA hopes to get lower prices and faster pace
CLPS Accomplishments

- 27 months after initial award, CLPS has:
  - Awarded 8 task orders for deliveries to the Moon
  - Manifested almost 40 instruments and technology demonstrations
  - Scheduled Lunar landings in 2021, 2022, and 2023
  - Committed roughly $550M for delivery services
Evolution of NASA’s approach

From Dr. John Donahue (Harvard Kennedy School):

Contracting and partnership are really, really different

• When you have a contract with a private company, the government is in control—unless it’s screwing up. The private company just does what it’s paid to do.
• When you have a partnership with a private company, control is shared. The government can influence the private company, but not control it.

• NASA’s approach towards commercialization today has more to do with establishing:
  • Who is responsible for development cost
  • Who is responsible for cost risk and schedule risk
  • Who is responsible for how systems are built
How does this apply to Mars?

• Fundamental to any form of commercialization is the need to identify customers who are willing to pay for services
• Launch services are clearly a well-established commercial industry
• Communications and Earth observation are well-established commercial industries
• There is evidence that a customer base could be emerging for activities in low earth orbit
• Not as clear what the customer base is for lunar activities but there is enough interest to spur investment support
• Commercial interest in Mars?
If there isn’t a direct commercial market…

• Can our science interests on Mars take advantage of commercial development for other markets?
• Can NASA’s choices for defining and developing Mars science missions be influenced by commercial capabilities developed for other markets?
• How would those feedback loops work?