

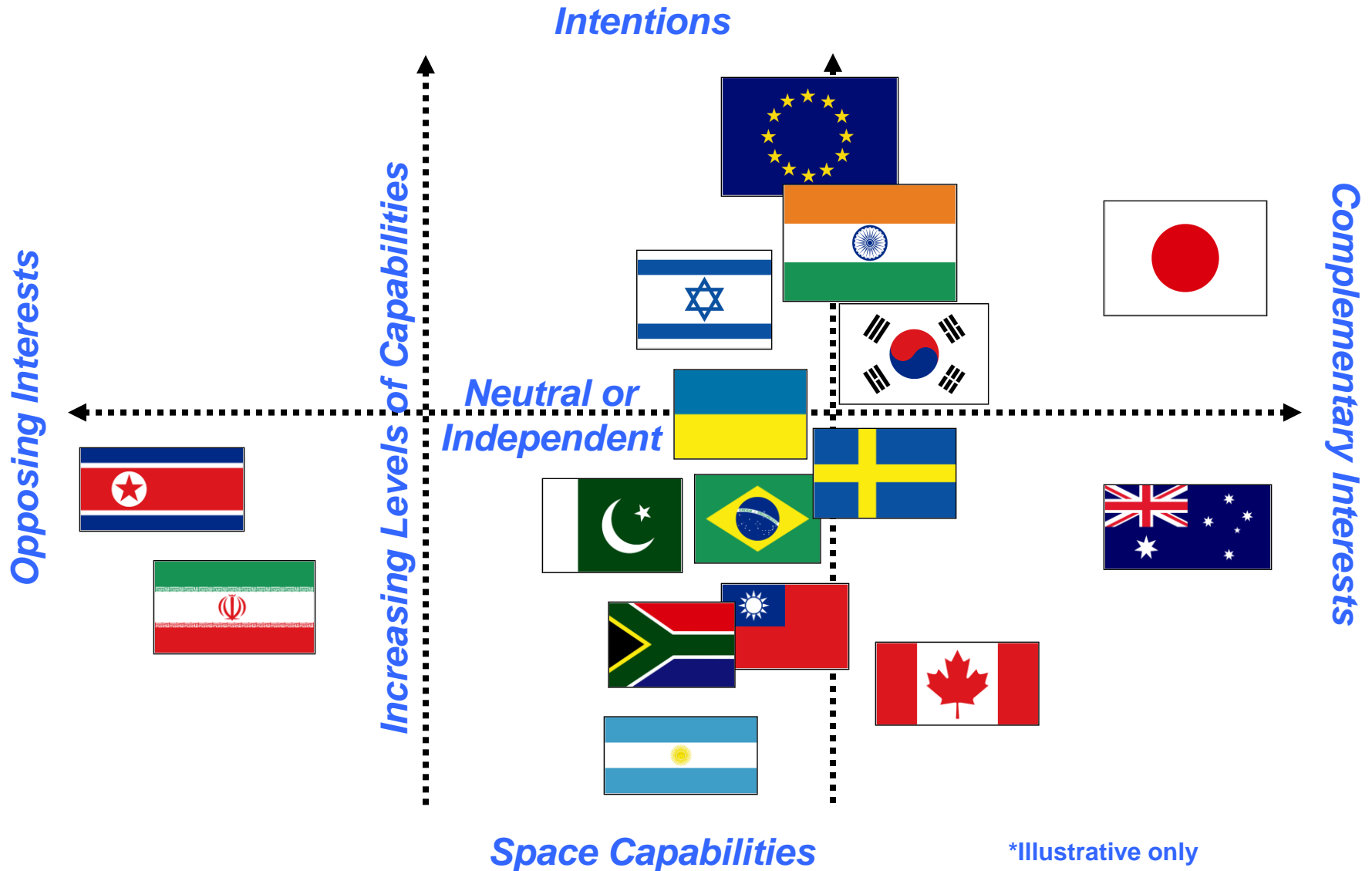
Human Space Flight and International Security

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International Issues and Questions

- U.S. dependency on Russia for human access to space during the gap.
- Will India scale up to larger space systems? Will they align with Russia in preference to the United States?
- Next steps for China – options for human lunar capabilities and being a responsible stakeholder in space
- How will changes in Japan's Space Basic Law translate into actual dual-use capabilities?
- Will Europe create a human spaceflight capability? Will it create a military space capability outside NATO?
- International frameworks for space commerce: orbital debris, financing, insurance, and property rights. Continuing impacts of export controls
- Does international cooperation in space offer lessons for other major efforts such as climate change and international development?
- Will space exploration develop in a more integrated or fragmented manner compared to today? Will cooperation be preferred among “common value” countries, new entrants, or all?

Space Powers in a U.S. National Security Context*



National Security Overlaps

- **Space Industrial Base**
 - Launch
 - Space-qualified electronics
 - Standards
- **People**
- **Technology Demonstrations**
- **Space communications and navigation**
- **Space Situational Awareness**
- **International Transparency and Confidence Building Measures (TCBMs)**

Strategic Approaches to Human Space Exploration

- **Capability-driven**
 - Current policy, Space Shuttle as precedent
- **Question-driven**
 - Would be new, but precedent in decadal science surveys
- **Geopolitically-driven**
 - Precedents in Apollo, Apollo-Soyuz, Space Station, and International Space Station
 - Post Cold War context of regional, not global rivalries, notably in Asia.

Choosing to Steer, Not Drift

Human space exploration is driven by vision and hopes but must be grounded in facts and analysis.

- U.S. HSF policies, programs, and budgets are not aligned.**
- Insufficient funds available to pursue conflicting objectives**

Human space exploration must be tied closely to critical national interests to justify the risks

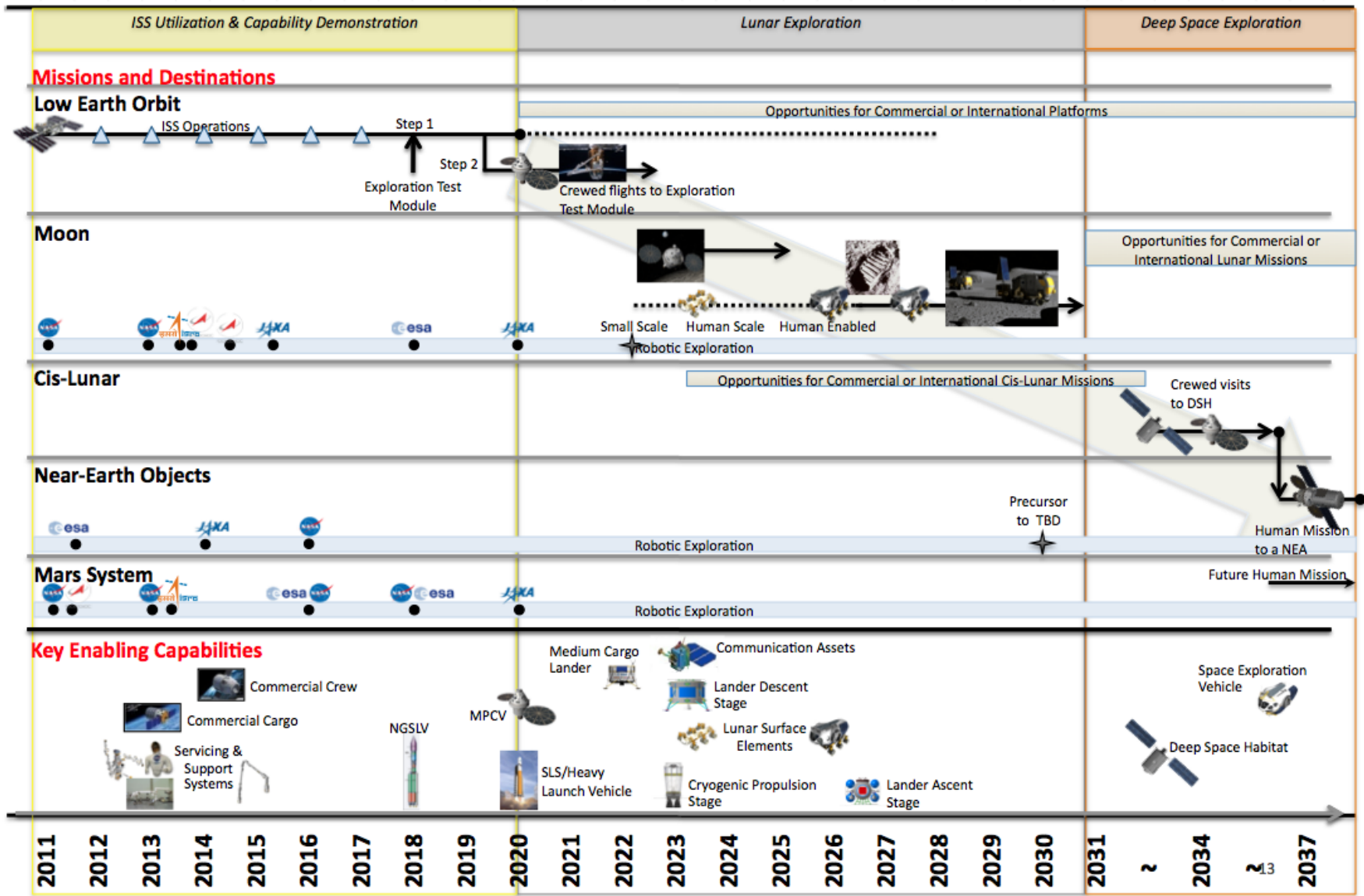
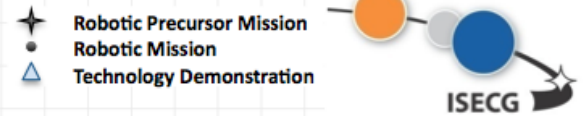
- Industrial policy goals alone are insufficient**
- Physical destinations alone are insufficient**

Human space exploration must take into account the interests, needs, and capabilities of international partners.

- Human lunar return offers the best mixed strategy for U.S. interest: political, economic, scientific, and diplomatic**
- Civil space cooperation complements security cooperation**

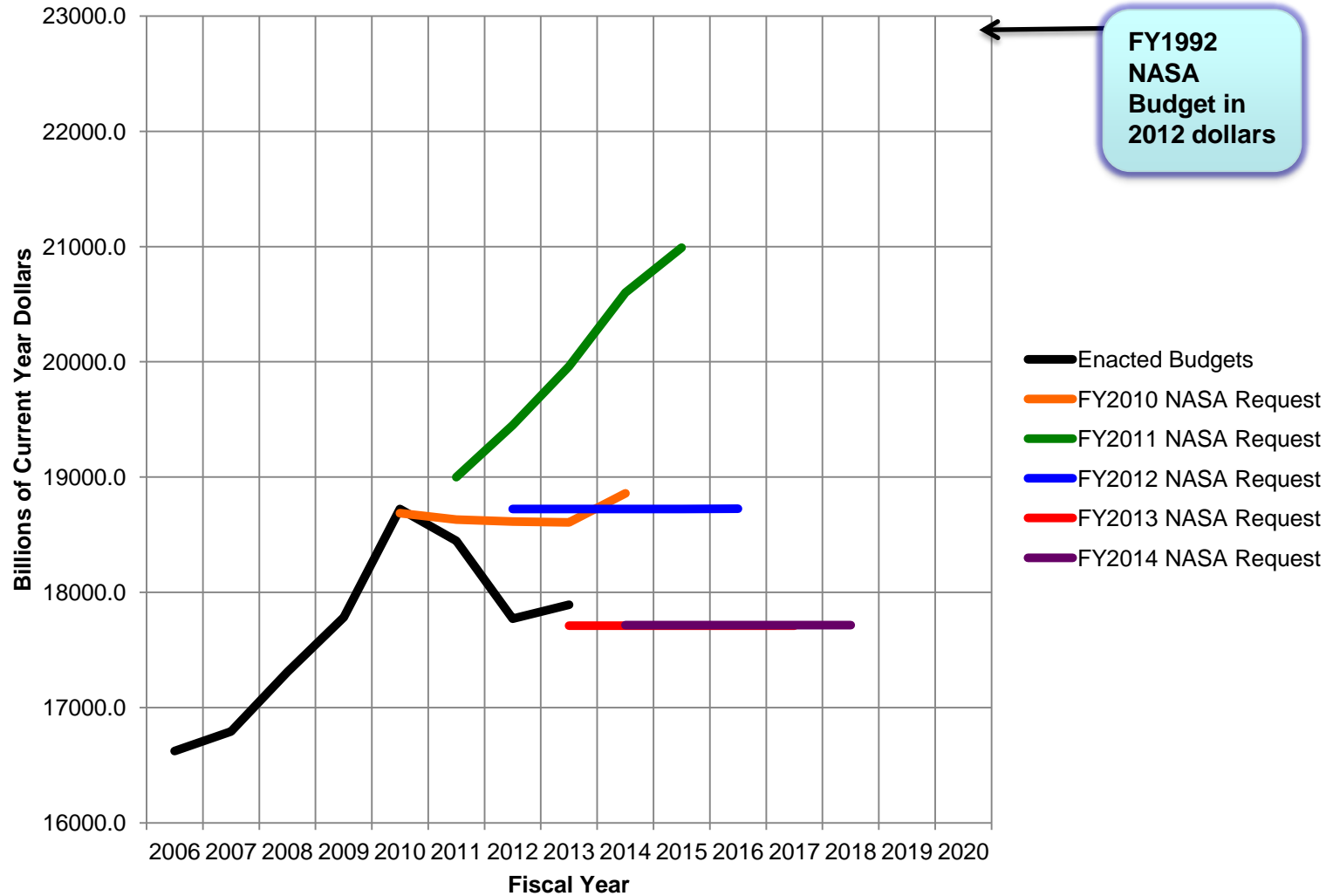
ISECG Mission Scenario: Moon Next

To Mars with Moon as the Next Step



Volatility and Decline

NASA Budget Requests and Enacted Budgets



Backup