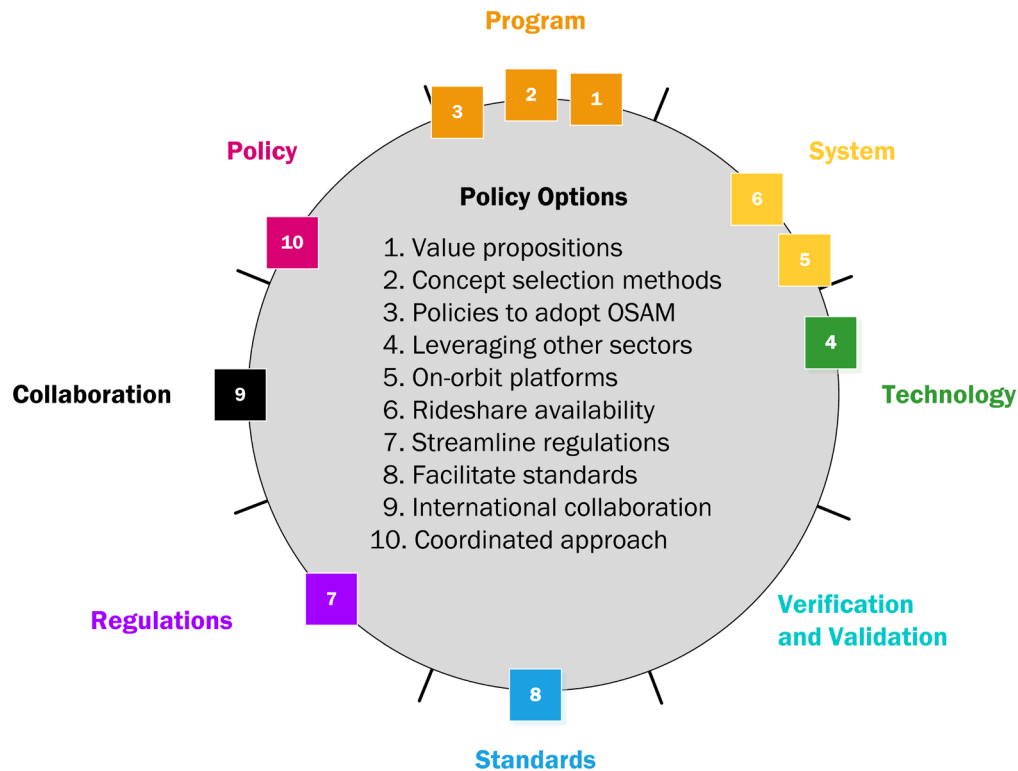


Roundtable Reveals Way Ahead for On-Orbit Servicing, Assembly, and Manufacturing

Bhavya Lal (blal@ida.org) and Benjamin A. Corbin (bcorbin@ida.org)

Design, capabilities, lifespan, and other aspects of spacecraft components are constrained by the fact that they are fully assembled on Earth and cannot typically be refreshed or improved once they are in space. On-orbit servicing, assembly, and manufacturing (OSAM) technologies are being pursued to ease these limitations. A wide variety of space missions could benefit from these technologies; however, challenges related to technology development and the surrounding policy framework may restrict both development and adoption.

On May 31, 2018, with the support of the National Space Council and the IDA Science and Technology Policy Institute (STPI), the White House Office of Science and Technology Policy hosted a roundtable on the challenges, next steps, and roles and responsibilities of government and private industry for OSAM of spacecraft. Roundtable attendees represented nine industry organizations, seven Federal Government organizations, and four nonprofit organizations (including Federally Funded Research and Development Centers, University Affiliated Research Centers, and universities).



Discussions during the roundtable were driven by attendee responses to a questionnaire STPI administered prior to the event about key technology, policy, legal, and regulatory challenges in the development of OSAM; the drivers of these challenges; and potential ways to address them. After analyzing the questionnaire responses and the roundtable discussions, STPI developed a model (above) identifying eight broad categories of importance to advancing OSAM.

(continued)

STPI also mapped to the model potential policy options for OSTP to pursue in OSAM. In brief they are:

- **Value propositions:** Conduct analyses to evaluate the value propositions of OSAM, and identify if there are missions where OSAM approaches yield scientific, economic, or other benefits.
- **Concept selection methods:** Revisit space systems concept selection methods to better articulate and characterize the value and risk from non-traditional space mission concepts.
- **Policies to adopt OSAM:** Work with government organizations to develop space system concept selection methodologies, practices, and policies that will encourage the adoption of OSAM approaches. This policy option, along with the ones that follow, would be pursued only if the assessments described above indicate OSAM would provide adequate value.
- **Leveraging other sectors:** Encourage consideration of technologies and approaches that can be leveraged from terrestrial sectors to benefit OSAM and future space activities.
- **On-orbit platforms:** Ensure the availability of on-orbit platforms for the development and demonstration of OSAM technologies and approaches.
- **Rideshare availability:** Promote and enable rideshare technology experiments for OSAM on government missions.
- **Streamline regulations:** Review, clarify, and, where possible, simplify and streamline all licensing policies and regulations relevant to OSAM activities.
- **Facilitate standards:** Facilitate the development of standards and norms of behavior for OSAM with the private sector and aerospace industry associations, using transparency and confidence-building measures.
- **International collaboration:** Encourage international collaboration across relevant OSAM activities.
- **Coordinated approach:** Develop a coordinated approach to better align government and industry efforts in OSAM.

STPI identified these options as those that would help ensure U.S. leadership in this area. Based on the original report (link below) and other input, NASA has recently created a National OSAM Office.