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SYMPOSIUM ON STEPPING STONES TO THE FUTURE: STRATEGIES, ARCHITECTURES, CONCEPTS AND TECHNOLOGIES (D3)
Infrastructures and Systems to Enable International Future Exploration and Utilization of Space (3)

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THE DEVELOPMENT OF A TECHNOLOGY PRIZE TO PROMOTE ON-ORBIT SERVICING INFRASTRUCTURE

Abstract

The STS-125 servicing mission to the Hubble Space Telescope marked the end of a long history of shuttle based On-Orbit Servicing (OOS) of this valuable space asset. OOS is an enabling technology for space infrastructure development and is closely linked to humanity's ability to further explore space. This paper documents the results of a two month, student conducted study that evaluated the potential use of a technology prize as a tool for spurring development in the OOS market. The goal of the project was to draw on existing technical and economic data on the satellite market and the state of current OOS capabilities. Conclusions on how to best construct a technology prize were derived.

The study identified the pros and cons of OOS, its stakeholders, current alternatives, and challenges in implementation. An intended outcome of the technology prize was defined and research on the size and value of the satellite market was gathered. The research was analyzed, resulting in a plan for an OOS Prize. The OOS Prize proposed is based around the following points: develop OOS incrementally by focusing on near-term applications, use proven technologies or developed technologies, demonstrate a commercially viable service, and involve all relevant stakeholders at some level.

The study revealed that currently there are no technological infeasibilities with OOS, and the lack of development is the result of lack of incentive, uncertainty, and hesitation on the part of the stakeholders. A technology prize for the development of a financially sustainable commercial OOS capability is one potential solution to this problem. The OOS Prize represents a new approach to solving the dilemma of developing an operational OOS capability by applying the centuries-old technology prize model to a modern day problem.