

Technology Infusion in the Era of Faster-Better-Cheaper Missions

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Abstract

The era of large, expensive NASA robotic deep space missions is drawing to a close with the launch of Cassini. Future missions will be small, inexpensive and more numerous (up to 12 deep space launches each year.) They will also be deployed in much less time - about twice as fast from concept until launch. New processes are being put in place at the Jet Propulsion Laboratory to support the development of these missions. A new process for technology infusion is also needed. Technology will no longer be developed for particular mission use. Individual missions will not be able to afford their own technology developments. Instead, technology must be developed that is both applicable to a large suite of missions and matures just in time for application. Technology decisions must be made based on optimizations between the flight and ground segments and between the many flight elements. This paper describes a new processes for the selection, development, verification, and transfer of new technologies in the area of telecommunications and mission operations. This new process can serve as a model for the infusion of other technologies in the era of faster-better-cheaper missions.