

SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND
DEVELOPMENT (D3)

Space Technology and System Management Practices and Tools (4)

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Univeristy of Alabama in Huntsville, United StatesIDENTIFYING TECHNICAL MANAGEMENT AREAS THAT AFFECT PERFORMANCE TO
INCREASE PROJECT EFFICIENCY**Abstract**

As space agencies around the world develop plans for scientific and technological advancement, at the same time budgets are contracting. To increase efficiency in space programs some key issues must be addressed in future project management. Three semi-retired senior NASA test laboratory directors, J. C. Blair, R.S. Ryan, and L.A. Schutzenhofer, have identified key technical management issues based on their combined experience that dates to the beginning of NASA. In interviews with these three senior technical managers and in reviewing documents that they have compiled, root cause technical management issues are identified. These include ownership and accountability, normalization of deviances, critical thinking failure, decentralized authority, and managing organizational complexity. The most prominent issue lies in integrating systems. It encompasses variety of project's components, from design to external operating environment, making reintegration from compartmentalization by necessity, a continuous effort throughout the life cycle. Specific integration processes affect project development at each level and by definition narrow future decision options, so this process requires highly effective communication networks. These communications networks would be utilizing the T-Model to create a seamless design process to address both ownership and authority issues experienced currently. Risk management also integrates the information from differentiated processes to evaluate and forecast future performance using Risk Matrix and PRA. These considerations are investigated within the context of life cycle management. Using the information obtained in collaboration with Marshall Space Flight Center we link past lessons learned to current management research. Analyzing the past projects leads towards understanding of research and development management techniques that identify specific areas of improvement and ways of changing the management to affect the overall performance of the end project. The organizational learning from NASA-MSFC historic analysis will provide greater insight into efficient use of resources and improved technical management.