

ABSTRACT:

**OPERATIONS RISK MANAGEMENT: MANAGING YOUR
INTEGRATION AND TEST RISK**

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The risk of damage to program hardware during assembly, integration, and test activities prior to a project's "operational" phase is significant. As an integral part of the project team from inception, the Systems Safety Office at the Jet Propulsion Laboratory has developed a process that brings together appropriate disciplines to review an impending activity in an informal Team environment. Incidents can easily cripple or destroy a project's chance of becoming operational. Traditional Test Readiness Reviews are rarely sufficiently detailed to ensure that all aspects of a pending activity are appropriately addressed. Schedule and budget pressures erode the ability of responsible leaders and managers to provide necessary attention to the upcoming activity. One value added tool Systems Safety brings to the project is a structured checklist of topics to address, ensuring the scope of the activity is thoroughly reviewed by knowledgeable persons, taking into consideration all aspects of the activity. This structured approach incorporates flexibility to assure all aspects of an operation are considered. The short time invested minimizes impacts to already overloaded schedules, yet has been repeatedly shown to be value added.

At JPL, the Systems Safety Engineer (SSE) is a member of the Project Team beginning very early in a project and is responsible for understanding the total system. The SSE must understand the system's sensitivities and interactions, and must bring significant technical expertise as well as a broad familiarity with lessons learned to the team. Most persons responsible for processing hardware, regardless of the level of assembly, are either specialists doing lots of generalist tasks, or are generalists and do not have the detailed specific knowledge of a specialist. This process brings together both generalists and specialists with a tight focus on a specific activity with high consequences for injury or hardware damage.

The process requires all participants to address potential areas of concern and assure themselves that the appropriate preparations have been made and precautions are in place. Areas determined to be deficient are either corrected before the activity can begin, or they can be referred to higher levels of management for acceptance of risk at the proper management level.

The Safety world is an intimate member of the overall Risk Management world, but is often perceived as overburdening projects with a plethora of rigid and highly specialized analyses. There is a need for analyses that have much more flexibility and adaptability to be effective. Overly burdensome processes are often eliminated solely because of their impact to a project.

Flexibility is the key to this process. It is essential that factors such as appropriateness, risk tolerance, recoverability, cost & schedule impact, personnel risk, regulatory safety compliance, objectives, and many other nebulous aspects of an activity be addressed within the pre-established project management guidelines. Even beyond the project, it is important to ensure the project is operating within appropriate and sanctioned institutional parameters. This survey process does all of this. It is a major tool in the overall Risk Management arsenal.

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