

# GSFC PROGRAM/PROJECT MANAGEMENT AND REVIEW BOARD CHECKLIST

## Leadership

- Does the leader work well with the team and external interfaces?
- Does the leader foster teamwork?
- Does the leader engender a feeling of mutual trust between all team members?

## Communications

- Is “Mission Success First” clearly communicated throughout the organization?
- Is the fact that safety is a number-one priority communicated throughout the organization?
- Is open communications evident, with all parties having an opportunity to be heard?
- Is a “Top 10” reviewed and acted upon weekly?
- Are all team members encouraged to report problems?
- Is it understood that we learn from our mistakes and we “don’t shoot the messenger”?
- Are line organization/project communications good?

## Project Team

- Are roles and responsibilities well defined?
- Are science and mission assurance elements properly represented in the organization?
- Is staffing adequate for project size, and are the right people in place?
- Are all key positions committed to a sustained effort over the project’s life cycle?
- Are team members supportive and open with review boards and management?
- Does the team have assessment metrics, which are evaluated regularly?

## Systems Engineering

- Have risk trades been identified and performed, and are risks being actively managed?
- Have flight/ground trades been identified and performed?
- Are adequate margins identified?
- Does mission architecture provide adequate data for failure investigation?
- Is there a formal process to incorporate lessons learned from other successful and failed missions early in the process?
- Is a rigorous change control process in place?

## Requirements

- Was mission success criteria established at the start of the mission?
- If so, does it specify the minimum science mission?
- Are mission requirements established, agreed upon by all parties, and stable?
- Is the requirements level sufficiently detailed?
- Is the requirements flowdown complete?

- Is the mission, and all of its elements, designed to meet requirements or to exceed them? If to exceed, can the cost be tolerated?

## **Validation and Verification**

- Is the verification matrix complete?
- Are checks in place to ensure processes are being followed?
- Does every process have an owner?
- Is mission-critical software identified in both the flight and ground systems?
- Is independent validation and verification planned for flight and ground software?
- **If IV&V is not planned**, are facilities established for simulation, verification and validation **internally**?
- Are plans and procedures in place for normal and contingency testing and training?
- Are tests repeated after configuration changes?
- Are adequate end-to-end tests planned and completed?
- Has extensive testing been done in the flight configuration?

## **Cost/Schedule**

- Is cost adequate to accommodate scope?
- **Does cost estimate allow for fabrication of engineering models where appropriate?**
- Has a “bottoms up” budget and schedule been developed?
- Has the team taken ownership of cost and schedule?
- Are adequate cost reserves, **and** schedule slack, **and other resources** available to solve problems?

## **Risk Management/Analysis/Test**

- Is risk managed as one of four key project elements (cost, schedule, content and risk)?
- Are analysis measures in place (Failure Modes and Effects Analysis, Fault Tree Analysis, Probabilistic Risk Assessment)?
- Have single-point failures been identified and justified?
- Has special attention been given to proper reuse of hardware and software?
- Have potential failure scenarios been identified and modeled?
- Is there a culture that never stops looking for possible failure modes?

## **Independent & Peer Reviews**

- Does the team actively encourage peer reviews?
- Are key technical experts identified for sustained support to reviews?
- Are all reviews/boards defined and planned?
- Is the discipline in place to hold peer reviews with “the right” experts in attendance?
- Are peer review results reported to higher-level reviews?
- Are line organizations committed to providing the right people for sustained support of reviews?

## **Operations**

- Has contingency planning been validated and tested?
- Are all teams trained to execute contingency plans?

- Have mission rules been formulated?
- Has the ops team executed mission rules in simulations?
- Are plans in place to ensure visibility and real-time telemetry during all critical mission phases?

### **Center Infrastructure**

- Is a plan in place to ensure senior management oversight of the project?
- Is a plan in place to ensure line organization commitment and accountability?
- **Is a Center commitment in place to insure that the tax structure will not significantly change after a cost commitment is made to Headquarters?**

### **Documentation**

- Have design decisions and limitations been documented and communicated?
- Is a process of continuous documentation in place to support unanticipated personnel changes?
- Is electronic/web-based documentation available?

### **Continuity/Handovers**

- **Is a common ground system being used for I&T, mission operations and science operations?**
- **If not, can this be justified from and cost and schedule perspective?**
- **If not, do core people transition to operations? Who? How many?**
- Is a development-to-operations transition planned?
- **Have members of the ops team been members of Integration & Test team?**
- **If not, does development-team knowledge exist on the operations team?**
- Is a transition from the integration-and- test ground system to new-operations ground system planned? If so, is there a plan and schedule to revalidate databases and procedures?
- Have there been changes in management or other key technical positions? How was continuity ensured?
- Have processes changed? If so, has the associated risk been evaluated?

### **Technology Readiness**

- Is any new technology needed that has not matured adequately?
- Has all appropriate new technology been considered?
- **Have the risks of new technology been properly mitigated with backups identified or in place?**