Announcement of Opportunity

Step-One Proposal Evaluation Plan Template

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Approved by:

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Principles for Evaluation

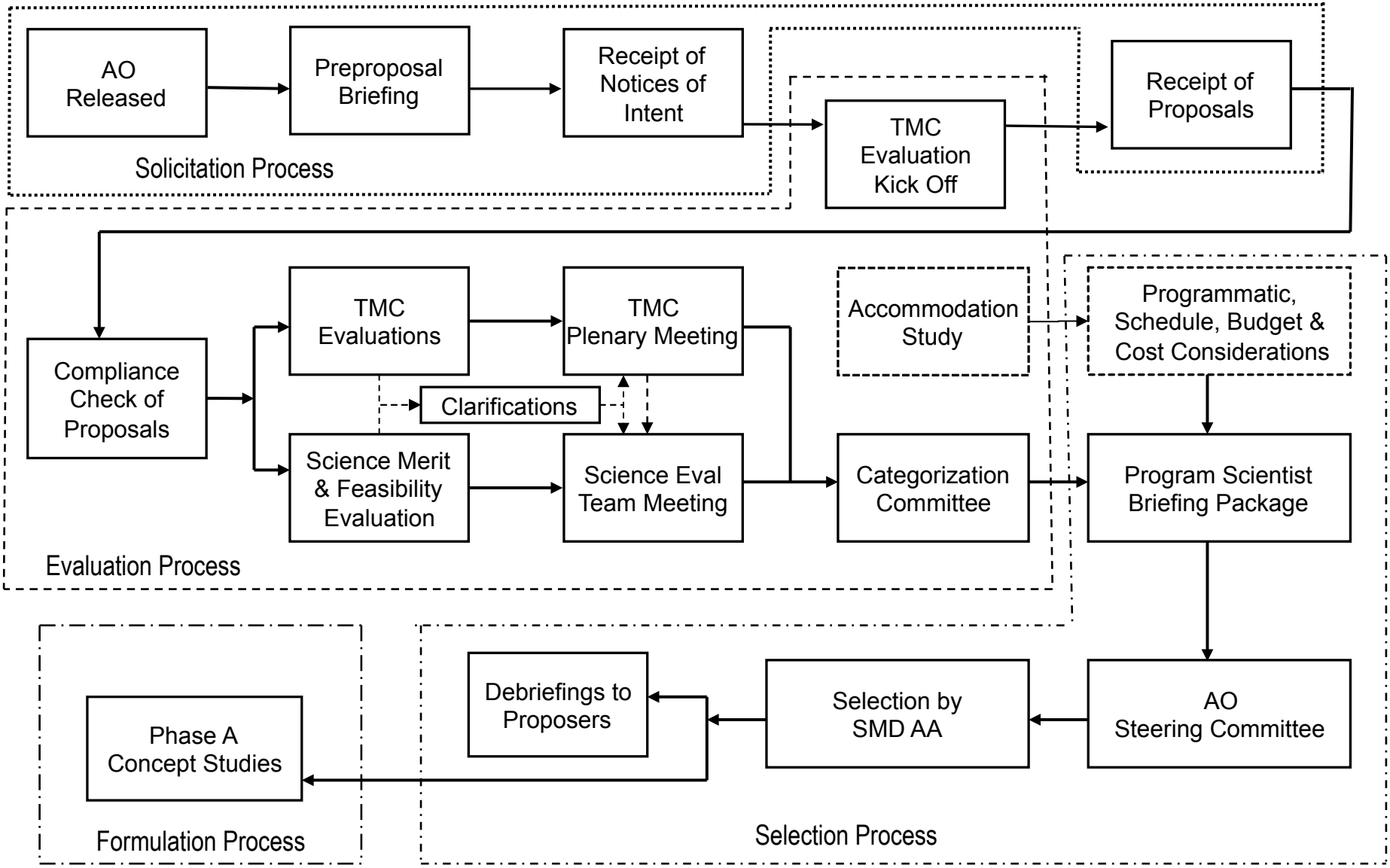
- All proposals are to be treated equally.

- Merit is to be assessed on the basis of material in the proposal.

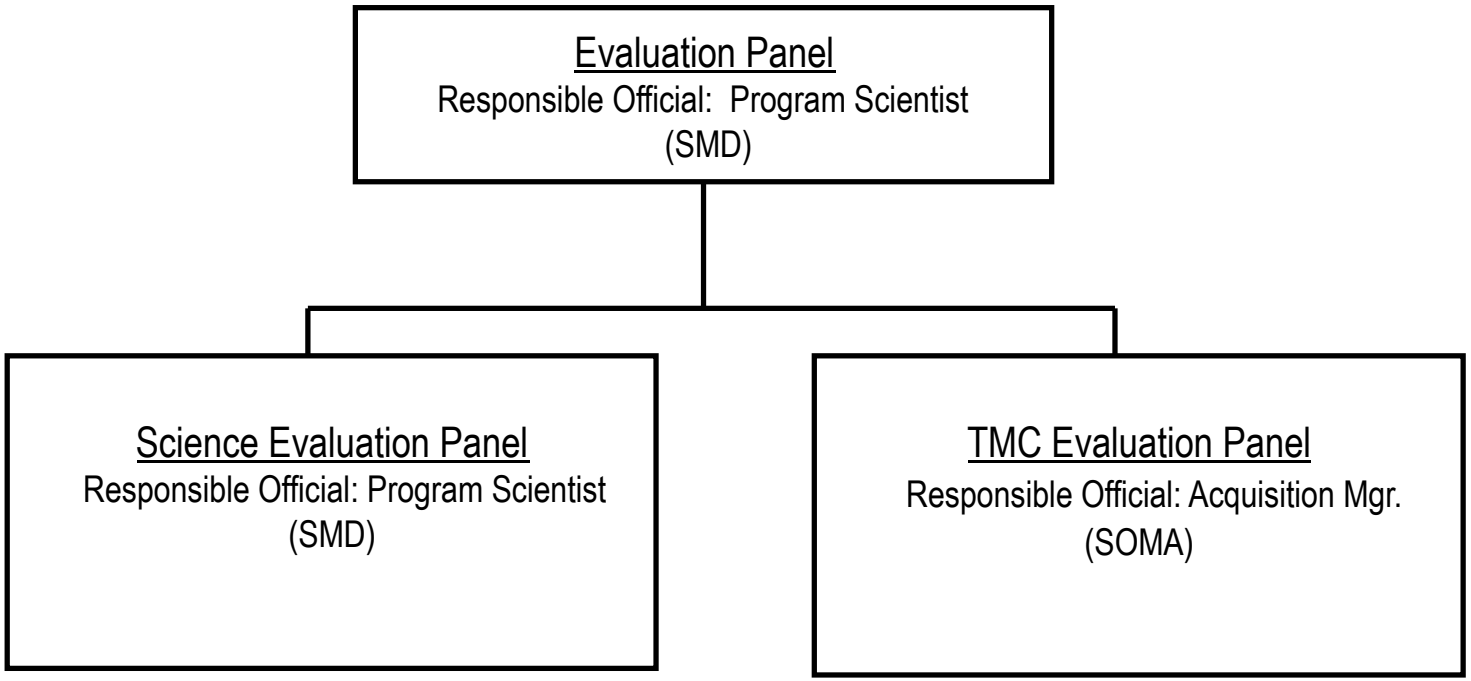
- Ratings should reflect the written strengths and weaknesses.

- Everyone involved in the review process is expected to act in an unbiased objective manner; advocacy for particular proposals is not appropriate.

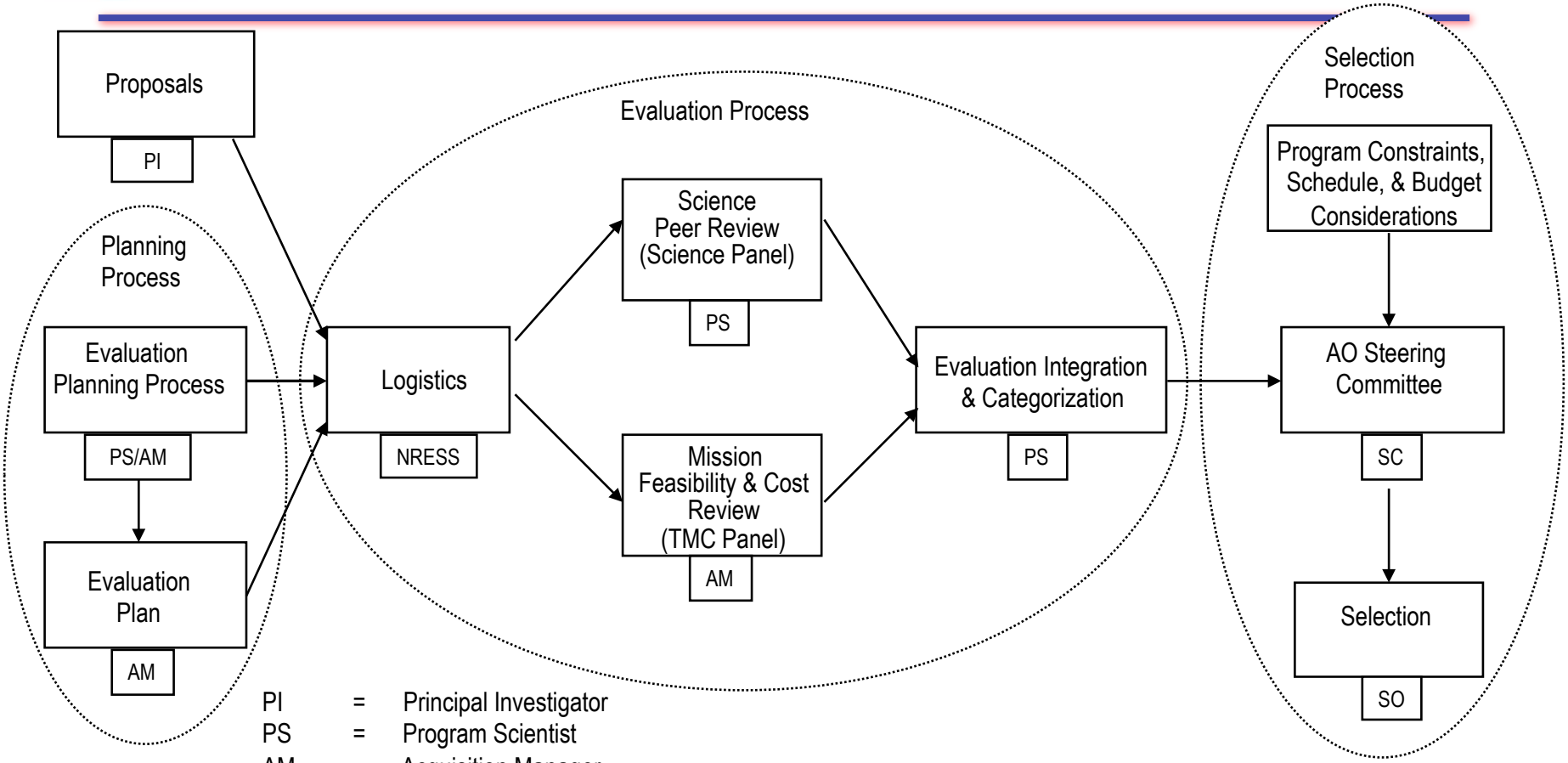
Proposal Evaluation Flow



Evaluation Panel Organization



Step One Evaluation Responsibilities



PI = Principal Investigator
PS = Program Scientist
AM = Acquisition Manager
SC = AO Steering Committee Chair
SO = Selecting Official
NRESS = NASA Research and Education Support Services

Conflicts of Interest (COI)

- Following receipt of proposals, NRESS will cross-check all members of the evaluation panels against the lists of personnel and organizations identified in each proposal, to determine whether any personal or organizational COI exists.

- Additionally, all evaluators must divulge any other financial, professional, or potential personal conflicts of interest, and whether they work for a profit-making company that directly competes with any profit-making proposing organization.

- All Civil Service evaluators must file a Form OGE 450 or SF278 and must be reviewed for financial conflicts of interest.

Conflicts of Interest (COI)

- All known conflict of interest conditions are documented and a conflict of interest avoidance plan has been developed to minimize the likelihood that this will arise as an issue in the evaluation process.

- If any previously unknown potential conflict of interest arises during the evaluation, the conflicted member(s) will be notified to stop reviewing proposals immediately, and the Panel Chair will be notified immediately. Any actually conflicted member(s) will be immediately removed from the evaluation process, and steps will be taken, expeditiously, to remove, mitigate, or accept any actual or potential bias imposed by the conflicted member(s).

- Members of the Science and TMC panels are prohibited from contacting anyone outside their panel for scientific/technical input, or consultation, without the prior approval of the Responsible Official.

Proprietary Data

- All proposal and evaluation materials are considered proprietary.
- Viewing of proposal materials will be only on a need-to-know basis.
- Each evaluator will sign a Non-Disclosure Agreement (NDA) that must be on file at NRESS prior to any proposals being distributed to that evaluator.
- All proposal materials will be numbered and controlled, and a record will be maintained as to which evaluator has what materials.
- Evaluators are not permitted to discuss proposals with anyone outside the Evaluation Team.
- All proprietary information that must be exchanged between evaluators will be exchanged *via* the secure NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES), *via* the secure Remote Evaluation System (RES), or *via* encrypted email, FedEx, fax, or regular mail. Weekly teleconferences among TMC evaluators will be conducted *via* secure telephone lines.
- Proposal materials will be collected from evaluators when the evaluation process is complete. Some copies will be archived in the NRESS and SOMA vaults; all other proposal materials will be destroyed.

Evaluation Ground Rules: General

- All Proposals will be reviewed to uniform standards established in the AO, and without comparison to other Proposals.
- All evaluators will be peers of the proposers in the areas that they evaluate.
- Specialist Reviewers (to provide special technical expertise to the TMC Panel) and non-panel/mail-in Reviewers (to provide special science expertise to the Science Panel) may be utilized, respectively, based on need for expertise in a specific technology or science that is proposed.

Evaluation Ground Rules: Clarifications from Proposers

- NASA will request clarification of potential major weaknesses in the feasibility of mission implementation that have been identified by the beginning of the TMC plenary meeting.
  - NASA will request such clarification uniformly, from all proposers.
  - All requests for clarification from NASA, and the proposer's response, will be in writing.
  - PIs whose proposals have no major weaknesses will receive an email informing them of that.
- The form of the clarifications is strictly limited to a few responses:
  - Identification of the locations in the proposal (page, section, line) where the major weakness is addressed.
  - Noting that the major weakness is not addressed in the proposal, or
  - Informing the reviewers that the major weakness is invalidated by information that is common knowledge or state-of-the-art and is therefore not included in the proposal.
  - Any response that goes beyond a clarification will be deleted and will not be shown to the peer review.
- The PI will be given 24 hours to respond to the request for clarification.

Evaluation Criteria and Selection Factors

- Evaluation Criteria:
  - The scientific merit of the proposed investigation;
  - The scientific implementation merit and feasibility of the proposed investigation; and
  - Technical, management, and cost feasibility, including cost risk, of the proposed investigation.

- Weighting: the first criterion is weighted approximately 40%*; the second and third criteria are weighted approximately 30%* each.

- Other Selection Factors:
  - NASA SMD cost;
  - Past performance (especially in meeting cost and schedule constraints);
  - Programmatic factors.

*Typical weighing factors

Compliance Check

Typical Compliance Criteria

Administrative:

1. Proposal received on time.
2. Original signature of Authorizing Official's is included
3. Electronic cover page and summary (NSPIRES submission) received on time.
4. Proposal includes summary information with content identical to electronic cover page.
5. Correct number of copies, each including a CD
6. Meets page limits.
7. Meets general guidelines (one volume, original easy to disassemble, maximum 55 lines text/page, maximum 15 characters/inch – approximately 12 pt. font).
8. Meets general requirements for format.
9. All required appendices included; no additional appendices.
10. Budgets are submitted in the required formats.
11. All individual team members are named on cover page indicate commitment through NSPIRES.
12. All export controlled information has been identified.

Typical Compliance Criteria

Scientific:

13. Addresses the solicited science research programs.
14. Requirements are traceable from science to instruments to mission.
15. An appropriate data archiving and/or sample curation plan is included.
16. A Baseline Mission and a Threshold Mission are specified.

Typical Compliance Criteria

Technical/Management/Cost:

17. Complete spaceflight mission (Phases A – F) proposed.
18. A single PI leads the team.
19. Includes commitment for E/PO program.
20. PI-managed Mission Cost within cost cap.
21. Phase A costs within Phase A concept study cost limit.
22. Contributions within contribution limit.
23. Co-Investigator costs in budget.
24. Launch date prior to launch deadline.
25. Includes table describing non-U.S. participants.
26. Includes letters of commitment from funding agencies for non-U.S. participating institutions.
27. Includes letters of commitment from all U.S. organizations offering contributions.
28. Includes letters of commitment form all major partners.

Science Evaluation

Typical Science Panel Composition and Organization

- The Program Scientist leads the Science Panel.
- Science evaluators are typically, but not exclusively, recruited from the academic, governmental, and industrial research communities.
- The Science Panel evaluates Science Merit and Scientific Implementation Merit and Feasibility.
- The science evaluation will be implemented *via* one Science Panel, but sub-panels may be employed, depending on the number and variety of proposed investigations.
  - Any sub-panel will be led by a NASA HQ Civil Servant, with a co-chair from the scientific community.
  - Any sub-panel will have an Executive Secretary.
- Each proposal will be reviewed by minimum of 3 panel members.
  - The Lead Reviewer for each proposal will lead the discussion.
  - A Supporting Reviewer will take notes on the discussion.
- The TMC Panel may provide comments and questions to the Science Panel.

Typical Science Panel Procedures

- Each member of the Science Panel will review Proposals as directed by the Chair.
  - If special science expertise is required, the Science Panel may utilize non-panel/ mail-in reviewers to assist with one or more proposals.
  - Non-panel/mail-in reviewers will evaluate only those parts of proposals pertinent to their scientific specialties.
- A Science Panel Plenary will be held upon completion of Science Evaluation for all proposals.
  - The Science Panel will compile all of the findings for each proposal.
  - For each proposal, the Chair or designated Lead Reviewer will lead the discussion, summarize the proposed investigation, and document the results.
  - If warranted, the panel may reconsider evaluations at the Plenary.
  - Evaluations of all proposals are reviewed during the Science Panel Plenary to ensure that standards have been applied uniformly and in an appropriate and fair manner.
  - The Chief Reviewer captures/synthesizes Panel evaluations.

Typical Science Panel Products

For each proposal, the Science evaluation will result in:

- Form A
  - Narrative findings, identified as major or minor strengths or weaknesses.
  - Based on findings, Scientific Merit adjectival ratings from each evaluator, ranging from “Excellent” to “Poor”.
  - Summary rationale for the median rating; comments to NASA; comments to PI
- Form B
  - Narrative findings, identified as major or minor strengths or weaknesses.
  - Based on findings, a Scientific Implementation Merit and Feasibility of the Proposed Investigation adjectival ratings from each evaluator, ranging from “Excellent” to “Poor”.
  - Summary rationale for the median rating; comments to NASA; comments to PI.

Science Panel Evaluation Factors

Criterion A: Scientific Merit of the Proposed Investigation:

- Factor A-1. Compelling nature and scientific priority of the proposed investigation's science goals and objectives.
- Factor A-2. Programmatic value of the proposed investigation.
- Factor A-3. Likelihood of scientific success.
- Factor A-4. Scientific value of the Threshold Science Mission.

Science Panel Evaluation Factors

Criterion B: Scientific Implementation Merit and Feasibility of the Investigation:

- Factor B-1. Merit of the instruments and mission design for addressing the science goals and objectives.
- Factor B-2. Probability of technical success.
- Factor B-3. Merit of the data and/or sample analysis plan.
- Factor B-4. Science resiliency.
- Factor B-5. Probability of science team success.
- Factor B-6. Merit of any science enhancement options (SEOs), if proposed.

Science Evaluation Products: Strengths and Weaknesses

- **Major Strength:** A facet of the response that is judged to be well above expectations and substantially contributes to the Science Implementation Merit.
- **Major Weakness:** A deficiency or set of deficiencies taken together that are judged to substantially detract from the Science Implementation Merit.
- **Minor Strength:** A strength that substantiates the Science Implementation Merit.
- **Minor Weakness:** A weakness that detracts from the Science Implementation Merit.

Form A and B Grade Definitions

Form A and B Grade Definitions

- **Excellent**: A comprehensive, thorough, and compelling proposal of exceptional merit that fully responds to the objectives of the AO as documented by numerous and/or significant strengths and having no major weaknesses.
- **Very Good**: A fully competent proposal of very high merit that fully responds to the objectives of the AO, whose strengths fully outbalance any weaknesses.
- **Good:** A competent proposal that represents a credible response to the AO, whose strengths and weaknesses essentially balance.
- **Fair**: A proposal that provides a nominal response to the AO but whose weaknesses outweigh any perceived strengths.
- **Poor**: A seriously flawed proposal having one or more major weaknesses (e.g., an inadequate or flawed plan of research, or lack of focus on the objectives of the AO).

TMC Evaluation

Typical TMC Panel Composition and Organization

- The Acquisition Manager, who is a Civil Servant in the Science Office of Mission Assessments (SOMA) at Langley Research Center, leads the TMC panel.
  - SOMA works directly for NASA Headquarters and is firewalled from the rest of LaRC.
- TMC evaluators are a mix of the best non-conflicted contractors, consultants, and Civil Servants who are experts in their respective fields.
  - All evaluators read every proposal.
  - Evaluators provide ratings of proposals as well as findings.
- Additionally, specialist reviewers may be called upon in cases where technical expertise that is not represented on the panel is needed.
  - Specialist reviewers evaluate only those parts of a proposal that are specific to their particular expertise.
  - Specialist reviewers provide only findings; they do not provide ratings.
- The TMC Steering Group consists of the Acquisition Manager, the Program Scientist, several experienced Evaluators.
  - The Steering Group will review the evaluations of all proposals to ensure that standards have been applied uniformly and in an appropriate and fair manner.

TMC Panel Evaluation Factors

Criterion C: Feasibility of the Mission Implementation, Including Cost Risk:

- Factor C-1. Adequacy and robustness of the technical plan.
- Factor C-2. Adequacy and robustness of the cost plan and schedule.
- Factor C-3. Adequacy of the management approach, including the capability of the management team.
- Factor C-4. Adequacy of the risk management approach.
- Factor C-5. Technical readiness.

Typical TMC Evaluation Sub-Factors

- Instrument
  - Instrument design, accommodation, and interface
  - Design heritage
  - Environment concerns
  - Technology readiness
  - Instrument systems engineering
- Mission Design and Operations
  - Launch mass margin
  - Trajectory analysis
  - Launch services
  - Concept of mission operations
  - Ground facilities – new/existing
  - Telecom
  - Planetary Protection
- Flight Systems
  - Hardware/software design
  - Design heritage
  - Spacecraft systems engineering
  - Design margins (excluding launch mass)
  - Qualification and Verification
  - Assembly, Test, and Launch Operations
  - Mission Assurance
  - Development of new technology
  - Entry/Descent/Landing
- Management and Schedule
  - Roles and responsibilities
  - Team experience and key individuals' qualifications
  - Project management and systems engineering
  - Organizational structure and Work Breakdown Schedule (WBS)
  - International participation
  - Risk management, including descope plan and decision milestones
  - Project-level schedule
- Cost
  - Basis of Estimate (BOE)
  - Cost realism and completeness
  - Cost reserves by phase
  - Comparison with TMC estimates (including parametric models and/or analogies)

Typical TMC Panel Products

For each proposal, the TMC evaluation will result in:

- Form C
  - Narrative findings, identified as major or minor strengths or weaknesses, including cost analysis.
  - Based on findings, adjectival risk ratings from each evaluator, ranging from “Low Risk” to “High Risk” on a three-point scale.
  - Summary rationale for the median rating; comments to NASA; comments to PI.

TMC Evaluation Products: Strengths and Weaknesses

Major and minor strengths and weaknesses are defined as follows:

- **Major Strength:** A facet of the implementation response that is judged to be well above expectations and can substantially contribute to the ability of the project to meet its technical requirements on schedule and within cost.

- **Minor Strength:** A strength that is worthy of note and can be brought to the attention of Proposers during debriefings, but is not a discriminator in the assessment of risk.

- **Major Weakness:** A deficiency or set of deficiencies taken together that are judged to substantially weaken the project's ability to meet its technical objectives on schedule and within cost.

- **Minor Weakness:** A weakness that is sufficiently worrisome to note and can be brought to the attention of Proposers during debriefings, but is not a discriminator in the assessment of risk.

TMC Evaluation Products: Risk Ratings

Based on the narrative findings, each proposal will be assigned one of three risk ratings, defined as follows:

- **Low Risk:** There are no problems evident in the proposal that cannot be normally solved within the time and cost proposed. Problems are not of sufficient magnitude to doubt the proposer's capability to accomplish the investigation.

- **Medium Risk:** Problems have been identified, but are considered within the proposal team's capabilities to correct within available resources, with good management and application of effective engineering practices. Mission design may be complex and resources tight.

- **High Risk:** One or more problems are of sufficient magnitude and complexity as to be deemed unsolvable within the available resources.

Categorization

Categorization

- Upon completion of the evaluations, the results will be presented to the Categorization Committee, an *ad hoc* subcommittee of the SMD AO Steering Committee composed solely of Civil Servants and IPA appointees, and appointed by the Associate Administrator for SMD.

- This committee will consider the peer review results and, based on the evaluations, will categorize each proposal according to procedures required by NFS 1872.403-1(e). The categories are defined as:
  - Category I. Well conceived and scientifically and technically sound investigations pertinent to the goals of the program and the AO's objectives, and offered by a competent investigator from an institution capable of supplying the necessary support to ensure that and essential flight hardware or other support can be delivered on time and data that can be properly reduced, analyzed, interpreted, and published in a reasonable time. Investigations in Category I are recommended for acceptance and normally will be displaced only by other Category I investigations.

Categorization (continued)

- Category II. Well conceived and scientifically and technically sound investigations which are recommended for acceptance, but at a lower priority than Category I.
- Category III. Scientifically or technically sound investigations which require further development. Category III investigations may be funded for development and may be reconsidered at a later time for the same or other opportunities.
- Category IV. Proposed investigations that are recommended for rejection for the particular opportunity under consideration, whatever the reason.

Evaluation Process Conclusion

Once Categorization has been completed, the Evaluation is considered ended unless found deficient by a subsequent review.