Concept Study Guidelines: Technical, Management, and Cost (TMC)

Washito Sasamoto
Discovery Acquisition Manager and TMC Chair
NASA Science Office for Mission Assessments (SOMA)
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Criteria and Guidelines for the Phase A Concept Study

- The Criteria and Guidelines for the Phase A Concept Study is item 3 in the Program Specific Documents section of the Discovery Program Library (http://discovery.larc.nasa.gov/dpl.html).
- The document contains instructions for the Concept Study Report (CSR).
  - Concept Study Requirements are designated as CS-1 to CS-105.
  - Note the following language from the document:
    - All program constraints, guidelines, definitions, and requirements specified in the AO are applicable to the CSR, except as noted herein.
    - In case of conflict between the AO and the CSR Guidelines, the CSR Guidelines take precedence.
    - Each CSR must be a self-contained document and must not refer to information contained in the Step 1 proposal.

Criteria and Guidelines for the Phase A Concept Study (continued)

- The Criteria and Guidelines for the Phase A Concept Study defines all Concept Study Report (CSR) preparation and submission requirements.
  - Format of CSR specified in Guideline Sections A through M.
  - CSR Structure and Page Limits are specified on page 14.
    - 30 pages for Science Investigation (changes highlighted)
    - 98 pages + for Science Implementation (including and/or TDOs, if any), Mission Implementation, Management, Other Factors to be Evaluated, and Preliminary Design and Technology Completion (Phase B) Plan
  - Two signed originals of the CSR and ninety (90) CD-ROMs (CDs) or single-layer DVD-ROMs (DVDs) containing PDF file(s) of the CSR, as well as a separate PDF of the Fact Sheet, Microsoft Excel files of cost tables and the MEL, Microsoft Project schedule files, trajectory files, required references, and any optional cost files.

Technical, Management, and Cost (TMC) Requirements

- The Criteria and Guidelines for the Phase A Concept Study contain instructions on required Technical, Management, and Cost information in Sections F, G, H, J, K, L, and M.
  - "Cost Proposal" Section K – format of information specified – no page limit
  - "Justification and Cost Proposal for optional SEO and/or TDO Activities" Section L – no page limit
  - "Appendices" Section M on specific topics - no page limits
    - Appendices should not be renumbered.

Updated Criterion C Factors

- An additional subfactor has been added to Factor C-2, “Adequacy and robustness of the mission design and plan for mission operations”.
- Clarifications have been made to two subfactors and one subfactor added to Factor C-4, “Adequacy and robustness of the management approach and schedule, including the capability of the management team”.

Additional Criterion C Factors

- Risk management aspects of Factor C-4, “Adequacy and robustness of the management approach and schedule, including the capability of the management team”, have been removed from Factor C-4 and included in a new evaluation factor, Factor C-6, “Adequacy of the risk management plan”.
- Two new evaluation factors have been added:
  - Factor C-7, “Ground Systems”
  - Factor C-8, “Approach and feasibility for completing Phase B”

Guidelines Note: SMD/SCaN LOA

- Effective October 1, 2015, NASA Science Mission Directorate (SMD) and Space Communications and Navigation (SCaN) program have agreed to a revised set of SCaN Mission Planning and Integration (MP&I) services to SMD missions as well as financial responsibilities applicable to each organization. The details of the agreement are outlined in the Realignment of Funding Responsibilities for Space Communications and Navigation memorandum posted on the Discovery Program Library. As a result of these changes, some of the expenses previously covered by SCaN are now the responsibility of each mission. These changes could place additional burden on proposed missions, and potentially drive proposed costs over the AO Cost Cap. Since the changes to SCaN services financial responsibilities are being implemented by NASA between Steps 1 and 2 of this competition, SMD will increase the AO Cost Cap, as adjusted for any incentives or launch vehicle credit, by the cost of this additional burden. For example, if the Step 1 AO Cost Cap was $480.0M, and the additional burden is valued to be $1.0M, the AO Cost Cap will be increased to $481.0M, all in Fiscal Year 2015 dollars. Section K (Cost Proposal) of the CSR should include a sub-section that justifies any additional funds required because of the changes in SCaN policy.

Guidelines Note: Preliminary Design And Technology Completion (Phase B) Plan

- Once entering Phase B, Discovery projects will be subject to the same requirements as all other NASA missions. Note that the CSR only satisfies some of the KDP-B deliverable requirements, and that the balance will have to be developed early in Phase B (consistent with Section 2.2.7.1 in NPR 7120.5E: "In a two-step AO process, projects are down-selected following evaluation of concept study reports and the down-selection serves as KDP B. Following this selection, the process becomes conventional with the exception that products normally required at KDP B that require Mission Directorate input or approval will be finished as early in Phase B as feasible.").

Guidelines Note: Risk Management

- Provide quantitative risk assessments, where the probability and impact of occurrence are independently and numerically specified prior to mitigation; specification of probability and impact after mitigation is encouraged but not required. The products of pre-mitigation probabilities and impacts are to be included as encumbered cost reserves.

Guidelines Note: Appendix M.20 "References List"

Requirement CS-103. This section shall provide a list of any internal program and project management standards to be used in the proposed development (e.g., GEVS, "Golden Rules"). To the extent practicable, the documents shall be included on the CD/ DVD.

Site Visits

- Site visits with oral briefings will be used to clarify implementation details and commitments.
- Site visits are anticipated during the November 2016 timeframe at location sites to be coordinated between the PI/Proposal Team and NASA HQ/SOMA.
- Briefings for each site visit will be limited approximately eight hours.
- All site visit presentations/briefings should be in a plenary session with all Evaluation Team members attending - no splinter sessions.
- Written significant weaknesses, questions, and/or requests for information will be provided to the PI/Proposal Team TBD days before the site visit. All teams will have the same lead time.
- Only the information presented during the site visit and contained in the CSR will be considered during the evaluation.

Evaluation Note: TDOs

- AO Section 7.2.4 stated:

  The technical and management approaches of all submitted investigations, including any TDOs proposed, will be evaluated to assess the likelihood that they can be successfully implemented as proposed, including an assessment of the likelihood of their completion within the proposed cost and schedule

- For Step 2, TDOs will be evaluated to the same standard as the baseline investigation.
  - Section L "Justification and Cost Proposal for optional SEO and/or TDO Activities" is not page limited.
  - TDOs will be assigned Criterion B and Criterion C ratings independent of the baseline investigation.

Evaluation Note: Range of Cost and Schedule (RCS)

- Range of cost and schedule (RCS) estimates will be provided to the Selection Official. The information in the CSRs, responses to questions, and information provided at site visits will be considered in preparing the RCS estimates. Findings generated by the Evaluation panel will also be considered when generating the RCS estimates.
- Driven by NPR 7120.5E:

  2.4.3.1 Tightly coupled and single-project programs (regardless of life-cycle cost) and projects with an estimated life-cycle cost greater than $250 million shall provide a range of cost and a range for schedule at KDP 0/KDP B, each range (with confidence levels identified for the low and high values of the range) established by a probabilistic analysis and based on identified resources and associated uncertainties by fiscal year. Separate analyses of cost and schedule, each with associated confidence levels, meet the requirement. A joint cost and schedule confidence level (JCL) is not required but may be used at KDP 0 and KDP B.