



Step 1 AO Simplification Workshop
Cost & Schedule Data: How much is too much?

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Cost & Schedule Data: How much is needed?



Cost

- **General Comments**
 - The Hard Cost requirements are reasonable with some exceptions
 - The Hard Requirements are summarized in Appendix B, sections F and G.
 1. Estimated cost of then entire investigation
 2. Amount by Fiscal year in tables B3, B4 and B5
 3. Address contributions
 4. Complete Table B8 (work force-FTE)
 5. All costs should be in FY 2008 Dollars

TABLE B3
TOTAL MISSION COST FUNDING PROFILE TEMPLATE
FOR SMEX INVESTIGATIONS
(FY costs¹ in Real Year Dollars, Totals in Real Year and 2008 Dollars)

Cost Element	FY1	FY2	FY3	FY4	FY5	...	FYn	Total (Real Yr.)	Total (FY 2008)
Phase A									
Phase B									
Reserves									
Phase C/D PM/MA/SE ²									
Instruments*									
Instrument IAT ³									
Spacecraft Bus									
Spacecraft IAT ³									
Other H/W Elements*									
Launch + 30 Days Ops									
Science Team									
Pre-Launch GDS/MOS ⁴									
E/PO ⁵									
DSN ⁶									
Other*									
Instrument Reserves									
Spacecraft Reserves									
Other Reserves									
Phase E PM ⁷									
Science Team									
MO&DA ⁸									
DSN/Tracking									
E/PO ⁵									
Other*									
Reserves									
Phase F									
PI Mission Cost	\$	\$	\$	\$	\$	\$	\$	\$	\$
4-Month Bridge Phase ⁹									
Contributions									
For Each Element Above*									
Total Contributions	\$	\$	\$	\$	\$	\$	\$	\$	\$
Total Mission Cost	\$	\$	\$	\$	\$	\$	\$	\$	\$
SEO Activities ⁹ (specify)									
Total Enhanced Mission Cost	\$	\$	\$	\$	\$	\$	\$	\$	\$

TABLE B8
FULL TIME EQUIVALENTS, WORK YEAR EQUIVALENTS,
AND EFFECTIVE DIRECT COSTS

Organization	NASA Civil Servant FTEs	Other Civil Servant FTEs	JPL Employee WYEs	Other Contractor WYEs	Effective Direct Costs (FY 2008)
PI organization					
other organizations					

Specify each organization in Table B8 in a separate row. All entries should be cumulative over the proposed baseline mission life, and costs should be in FY 2008 dollars.

TABLE B4
NASA COST FUNDING PROFILE TEMPLATE
FOR MISSIONS OF OPPORTUNITY
(FY costs¹ in Real Year Dollars, Totals in Real Year and 2008 Dollars)

Cost Element	FY1	FY2	FY3	FY4	FY5	...	FYn	Total (Real Yr.)	Total (FY 2008)
Phase A									
Phase B									
Reserves									
Phase C/D PM/MA/SE ²									
Instruments*									
Instrument IAT ³									
Science Team									
Pre-Launch GDS/MOS ⁴									
E/PO ⁵									
Other*									
Instrument Reserves									
Other Reserves									
Phase E PM ⁷									
Science Team									
MO&DA ⁸									
DSN/Tracking									
E/PO ⁵									
Other*									
Reserves									
Phase F									
PI Mission Cost	\$	\$	\$	\$	\$	\$	\$	\$	\$
4-Month Bridge Phase ⁹									
Contributions									
For Each Element Above*									
Total Contributions	\$	\$	\$	\$	\$	\$	\$	\$	\$
Total Mission Cost	\$	\$	\$	\$	\$	\$	\$	\$	\$
SEO Activities ⁹ (specify)									
Total Enhanced Mission Cost	\$	\$	\$	\$	\$	\$	\$	\$	\$

TABLE B5
MISSION PHASE SUMMARY FOR COST
(FY costs¹ in Real Year Dollars, Totals in Real Year and 2008 Dollars)

Mission Phase	FY1	FY2	FY3	FY4	FY5	...	FYn	Total (Real Yr.)	Total (FY 2008)
Phase A/B									
Phase C/D									
Phase E									
Phase F									
PI Mission Cost	\$	\$	\$	\$	\$	\$	\$	\$	\$
Contributions									
Total Mission Cost									
SEO Activities									
Total Enhanced Mission Cost									

¹ Costs must include all costs including any fee



Cost

- The “it would be nice to have” desirements contribute to the proposal complexity (SMEX 2007 AO Appendix B sect.G para. 5)
 - MEL- A detailed MEL can drive the proposal to a Phase A level of maturity
 - WBS Dictionary
 - Basis of Estimates Details- To be credible design levels and approach to estimating the mission costs are higher than could be typical for Pre-Phase A. Very time consuming to validate the BOE. This is a Phase A and B effort not pre-Phase A.
 - The request for this data is inconsistent with pre phase A since proposed costs estimates are based on more modeling than grass roots. Reluctance to submit incomplete MEL, WBS and BOEs (although admittedly OK by the AO) drives proposal complexity.
- **Recommend either eliminating this desire or defining the detail you want if this data is supplied**



Cost

- Other Suggestions

COST:

1. Allow cost tables to be submitted as one single Excel file, versus a separate file for each table.
 - The current requirement is time consuming especially for the larger proposals. Requiring each table in a separate file requires us to put all numbers to values, which eliminates the capability for reviewers to examine the linkage (and related formulas) between tables.
2. Dictate with more consistency the cost estimating methodologies you want to see used and the format that you want to see the resultant data presented.
 - Make available the cost tools
3. Require cost tables to be either Real Year or Fiscal Year but not both. And they should be the same as cost cap dollars.



Cost

- **Costs**
 4. Only require a Level 2 WBS submittal for Step 1 proposals. This is consistent with the 7120.5d definition of pre phase A.
 5. Update Cost table B3 to be more current and we think useful for everyone. See next page for suggestion of new table
 6. Is Cost chart B8 really necessary?
- **SOW - Appendix 2**
 1. It is not apparent how the SOW for all phases is used in the evaluation of the Step 1 Proposals
 2. If it is not being used in evaluation then only require a Phase A SOW



Alternative Table B3

TABLE XX
Mission costs by year with Schedule Reserve in FY08\$
In K\$ (FY08\$)

WBS	Description	FY08	FY09	FY10	FY11	FY12	FY12	FY13	FY14	FY14	total by wbs
		5/08 - 9/08	1/09- 9/09	10/09-9/10	10/10-9/11	10/11-3/12	4/12-9/12	10/12-9/13	10/13-3/14	3/14-9/14	
		\$	\$	\$	\$	\$	\$	\$	\$	\$	
	Phase A										-
1.0	Mission Mgmt										-
2.0	System Engineering										-
3.0	Mission Assurance										-
4.0	Science & Data Analysis										-
5.0	Instrument										-
6.0	Spacecraft										-
7.0	Mission Ops										-
8.0	Launch Vehicle										-
9.0	Ground Systems										-
10.0	System I&T										-
11.0	EPO	-									-
	Student Collaboration										-
	total by year	-	-	-	-	-	-	-	-	-	-
	contingency (30%)		-	-	-	-	-	-	-	-	-
total costs		-	-	-	-	-	-	-	-	-	-
	Contributions										-
	inflation	1	1.027	1.055	1.055	1.085	1.118	1.149	1.181	1.181	
	inflated yearly totals	-	-	-	-	-	-	-	-	-	-



Schedule

- Schedule Requirements of the AO are reasonable and appropriate per 7120.5D
 - Schedule meeting proposed launch date showing all phases
 - Schedule must show as a minimum- review dates, instrument and s/c development, I&T, launch ops, and MO&DA
 - Show critical path and funded reserve
- Schedule suggestion:
 1. Although the requirements are general and reasonable, past experience has shown that TMCO is sometimes looking for more specifics. Are there areas of development that more fidelity is needed, e.g Payload/Bus I&T?