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Presentation

To

Requirements: Perception and Reality

AO Simplification Workshop

Dallas, Texas

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ASSUMPTIONS:

- **AO approach is the two step selection process**
- **Step 1 selections will be 2x- 3x number of flight selections**
- **Simplification is to benefit proposers and NASA**
- **Presentation uses SMEX as a baseline with appropriate enhancements for MIDEX / ESSP and DISCOVERY / NF**

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What is needed for Step 1 Science Evaluation?

- **SCIENCE:**

- Describe the Mission Goal(s) and Objective(s)
- Describe their fit into the NASA Science Plan
- Define the required measurements
- Identify the key members of the Science Team

- **SCIENCE IMPLEMENTATION**

- Identify the type of instrument to be used
- Provide the rationale for the proposed instrument

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- **DATA PRODUCTS**

- **Describe the expected data products and demonstrate how they will assure the accomplishment of the science goals and objectives**

- **MINIMUM MISSION:**

- **Describe what needs to be accomplished to maintain a viable mission**

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Backup to slide 3/4

- **Can be done with a narrative and 1 or 2 fold outs similar to a traceability matrix showing the connection from the Goals and Objectives to the required measurements, to the proposed instruments that will make the measurements and to the data products produced from the measurements along with the Science Team member responsible for generating the data product. No need to identify specific descopes or their timing.**

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What is needed for Step 1 Technical Evaluation?

- **TECHNICAL IMPLEMENTATION:**
 - Describe the proposed instrument's capability to make the measurement
 - Describe the required orbit(s), flight duration, non-standard launch vehicle requirements, non-standard ground system requirements

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- Describe the spacecraft bus requirements, including any flight performance**
- Describe observatory integration and test approach**
- Describe the ground station requirements**

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Backup to Slide 6/7

Technical Implementation:

- Provide general orbit characteristics such as type, altitude, inclination, adjustments, etc**
- Provide a timeline for science operations, orbital changes/corrections, etc**
- Provide information on non-standard services**
- Provide information on the type of spacecraft required i.e. spinner, 3-axis, along with a discussion of candidate bus used on a similar mission and applicable to the proposed mission**

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- **MANAGEMENT:**

- Identify the management organization and the qualifications of the PM, MSE and any unique discipline required.
- Identify the tools that will be used to manage, allocate and control resources.

- **SCHEDULE:**

- Provide a top level schedule showing the duration of Phase A, Phase B, Phase C/D and Phase E

- **COST:**

- Provide a ROM for each top level WBS element.

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Backup to Slide 9

- Provide an organizational chart showing each primary institution responsible for major or critical hardware/software.**
- Define the tools that will be used and how and when they will be applied.**
- Provide a schedule with sufficient information to evaluate the feasibility of developing the mission on time**
- Provide cost ROMS for PM, MSE, Science, P/L, S/C, I&T, MO&DA, E/PO, Reserves**

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PROPOSAL CONTENT: STEP 1

- **SCIENCE** **25 Pages**
Includes Goals and Objectives,
Measurements, Instruments, Data
Products, Science Team
- **TECHNICAL IMPLEMENTATION** **10 Pages**
Including Management, schedule
and cost

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- **STEP 1 CONCEPT STUDY REPORTS:**
 - **Similar to, but less than, current SMEX Step 1 Proposals.**

- **STEP 2 SELECTIONS:**
 - **Mission with the lowest risk goes first**
 - **Other selected mission requiring technology development/risk mitigation go into an extended Phase A study in preparation for next flight start.**

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AO Process Schedule:

Release Draft AO	T- 60 Days
Release AO	T = 0
Receive Proposals	T+45 Days
Step 1 Selections	T+105 Days
Phase A Concept Studies	T+195 Days
Step 2 Selections	T+270 Days

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SUMMARY

STEP 1 SELECTIONS:

- I believe the Science Panel can provide Excellent to Very Good Science ratings from the information provided. (They already do)
- I believe the TMC panel can provide risk rankings from the information provided.
(They are very astute Engineers and Managers)

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CONCLUSION

- ***The first two AO missions selected (IMAGE and MAP) were Scientific and Engineering successes done at cost and on schedule and neither even proposed a spacecraft or a detailed mission management plan for step 1.***

“Did we fix something that was not broken?”