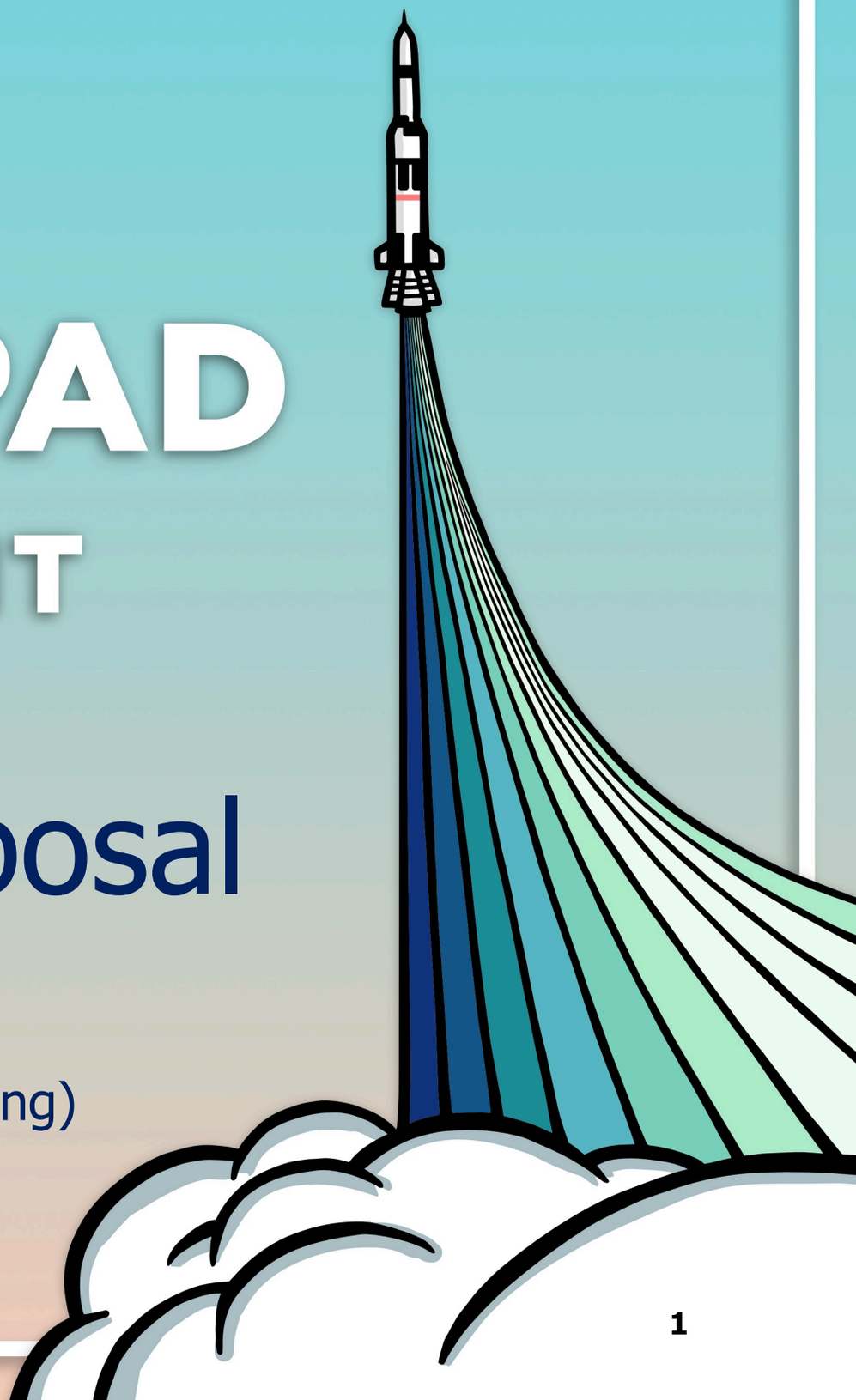
PI LAUNCHPAD

VIRTUAL SUMMIT

JUNE 14-25 2021



Elements of a Proposal

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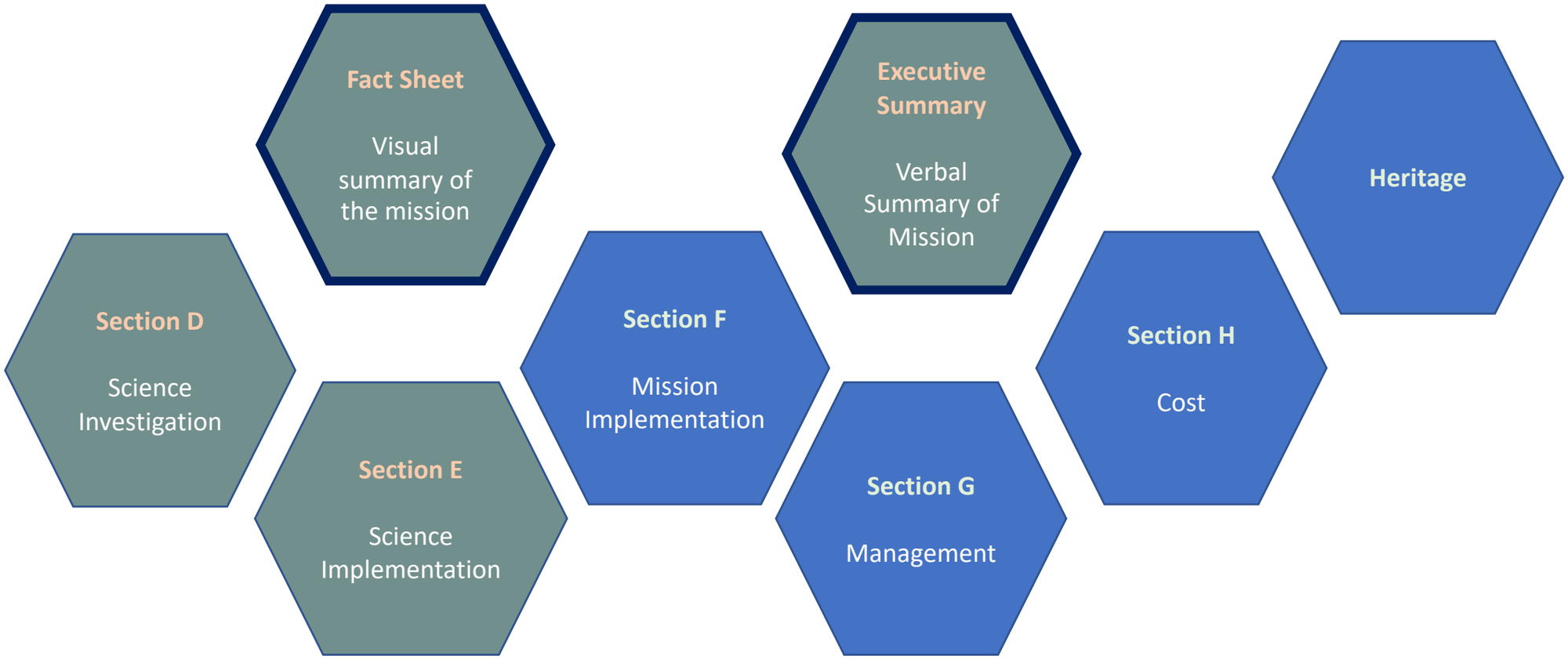
Elements of a proposal



Sections requiring PI attention

- Sections D & E
  - Demonstrate that your experiment will answer the important science questions that the community is longing for
- Fact Sheet and Executive summary
  - Maybe the only sections a selection official and/or his advisors may look at

Sections led by Team Members

- Section F
  - Mission Integrator (i.e., spacecraft provider) could lead this section
- Sections G & H
  - Project Manager lead

Science Investigation (Sec D)

Compelling Science Case

Science

- Compelling science question
- Observe/Measure an Interesting phenomena

Importance to the science community

- NASA Science Strategy
- NASA Strategic Plan
- Relevant Decadal Survey
- Critical reports by Scientific Bodies (NASEM, IPCC, etc)

Why now

Success criteria (minimum and Goal)

- Minimum success (L-1 requirements)
  - After descope options are exercised

Science Traceability Matrix

- *Science Goals -> Observations -> Measurements -> Instrumentations*
- Identify Difference between Meeting science goals and minimum requirements

Science Investigation (Sec E)

Proposed Science experiment will answer the science question

Instruments

- Observation
- Transform observations into science data
- Operational environment
  - thermal, radiation, contamination, jitter, electrical/magnetic cleanliness, Field of View)
- *Technology Readiness – should be at TRL 6 by PDR*

Concept of Operations

- Science mission profile
- Modes of Operation - On, Off, SAFE, Calibrate, etc

Data Sufficiency

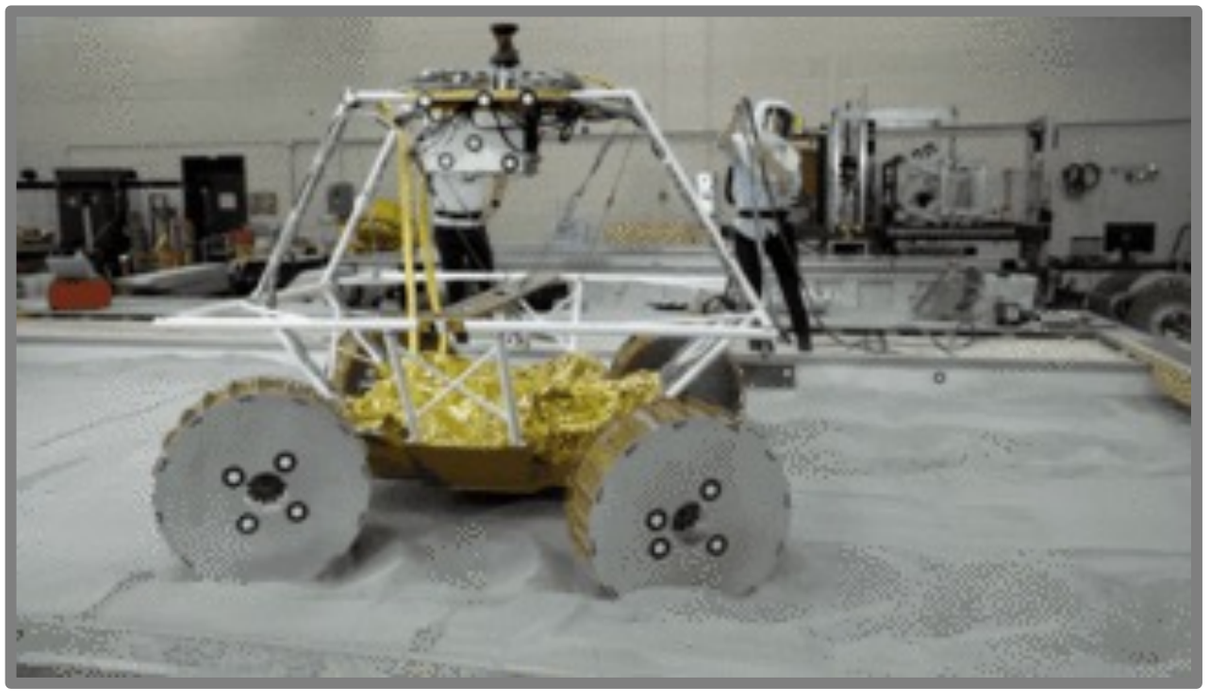
- Mission design and flight system places the experiment in optimum position with necessary field of view for observing your target
- Data obtained has sufficient temporal/spatial resolution
- Data quantity and quality
- Analysis approach to answer your L-1 science questions

Data Management Plans

- Data processing, archiving, and distribution
- Provide calibrated data to the science community asap
  - *Minimize proprietary time*

Science Team

- Perform key functions to answer science goals
- Each person on the science team must have a role in answering your L-1 requirements



Mission Implementation (Sec F)

Concept Mission will support successful science investigation

Platform

- Spacecraft, ISS, other host platforms
- Mission, trajectory design
- Design margins
- Mission ops, communication

Development Approach

- Systems Engineering, interfaces
- Important trade studies
- Spare philosophy
- Mission Assurance

Technology Readiness

- Flight system at TRL 6 by PDR

Assembly, Integration, and Test

- Describe your integration & Test Plan to ensure your flight system survives launch and functions in the operational environment

Integrated Master Schedule

- Critical Path, Slack (difference between when supplies are being delivered and when they are needed), Schedule Reserve (Funded and unfunded)

Mission Implementation (Sec G)

People, Systems and processes established for project success

Have the right people and they work well together

- PI-PM Working Relationship key
- Team relationship
- Relationship between institutions

Work is organized to provide key products to deliver science goals

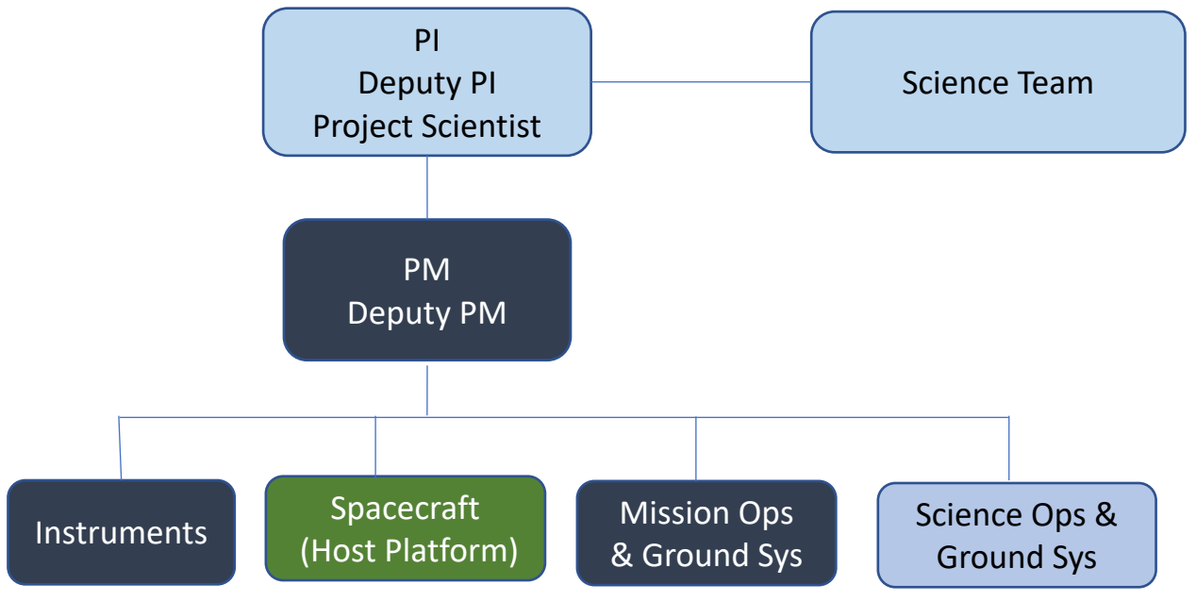
- How is the work structured
- Organization Chart (clear lines of authority & responsibility)

Decision Making

- *PI makes all decisions that affect L1 requirements*
- PM makes day to day decisions to deliver the mission
- *Descope decision making*

Processes and Systems

- Change Management
- Risk Management
- Communications (within team and external)



Mission Implementation (Sec H)

Proposed Cost is Credible to Accomplish the mission

Projected cost of each WBS element

- What work is done in each WBS
- Life Cycle cost of mission

Reserves

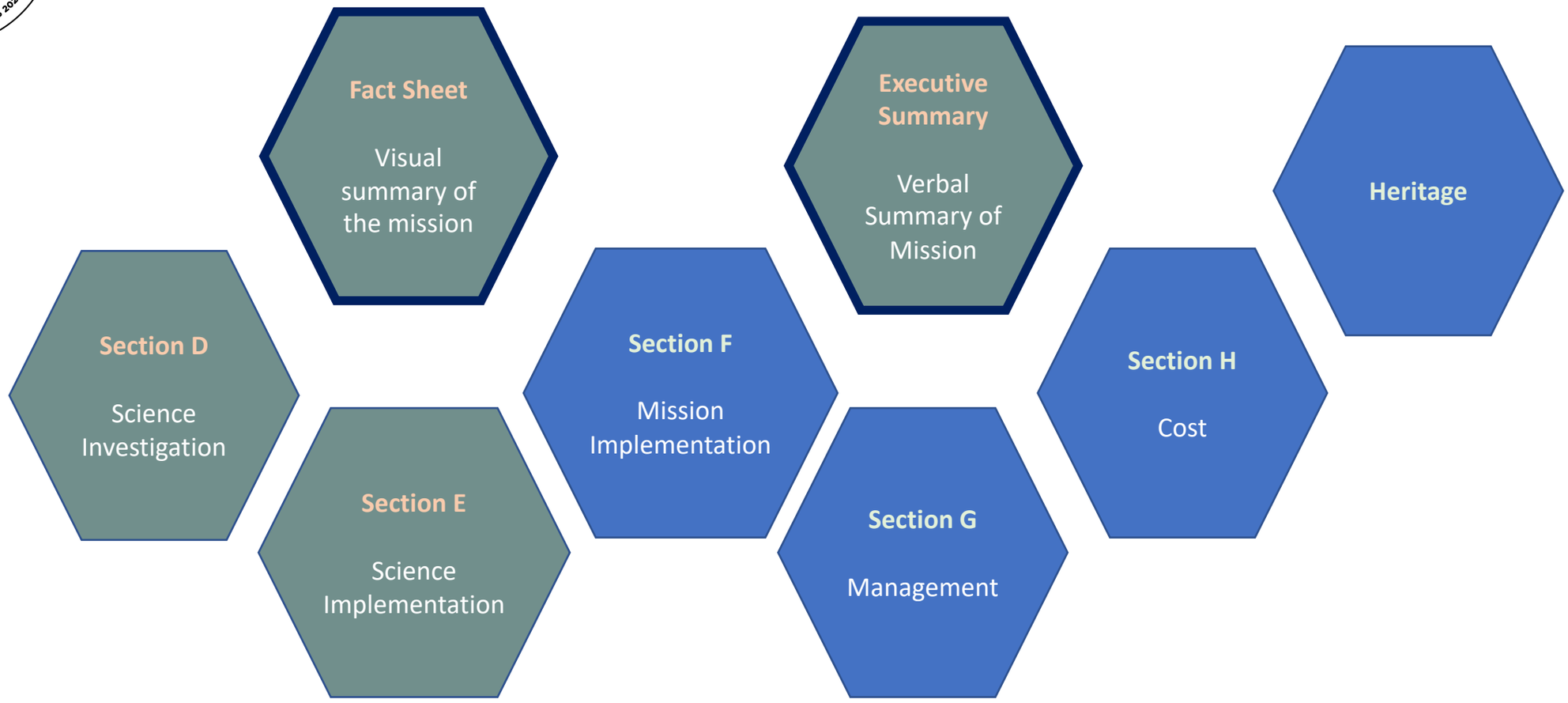
- Specified in AO

Contributions

- Partners & institution

Work Breakdown Structure (WBS)	
WBS 1	Project Management
WBS 2	Systems Engineering
WBS 3	Safety & Mission Assurance
WBS 4	Science
WBS 5	Instruments (Payload)
WBS 6	Spacecraft
WBS 7	Operations
WBS 8	Launch Vehicle
WBS 9	Ground Systems
WBS 10	Systems Integration & Test

Elements of a proposal



Compelling Science Question (D)

An executable experiment that answers the science question (E)

Summaries (Executive, Fact Sheet)

Mission providing optimum observing conditions (F)

How work is organized, managed, and performed? (F, G)

Life Cycle cost of mission (H)