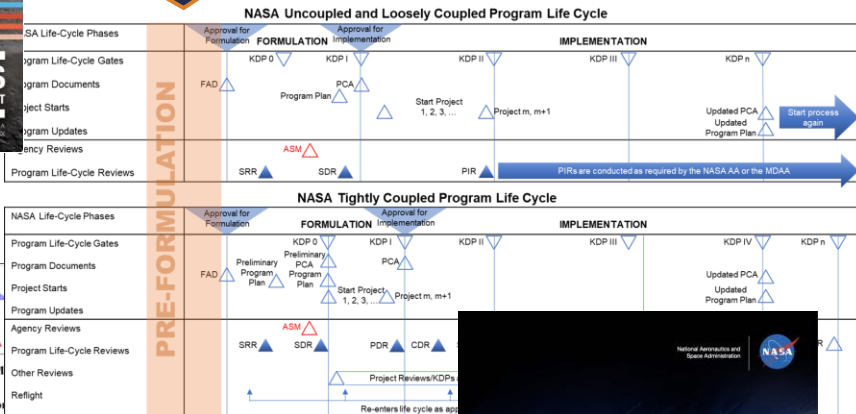
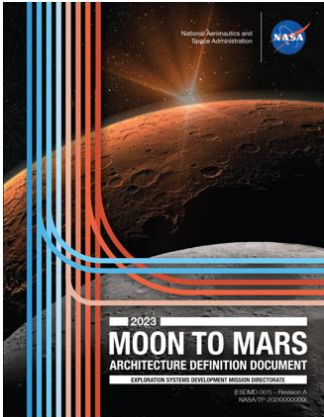


Three stylized silhouettes of astronauts in space suits are arranged horizontally. The left silhouette is blue and contains a scene of a rocket launch. The middle silhouette is black and contains a view of the lunar surface. The right silhouette is red and contains a scene of a rover on Mars. A dark blue horizontal bar is overlaid across the center of the silhouettes, containing the text.

# Breakout Session: Pre-Formulation Process and Partner Engagements

# Architecture Products to Action



- Historically, human spaceflight pre-formulation transient independent efforts
- Moon to Mars is multi-decadal; consistent and repeatable pre-formulation needed
- Moon to Mars Architecture used derive new elements and address gaps ensures coherency and value

NASA Space Flight Program and Project Management Handbook

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1.4 Acquisition  
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**Chapter 2. NASA Life Cycles for Space Flight Programs and Projects**

2.1 Programs and Projects

NASA 7120.5 NPR



# Key ESDMD Process Milestones

## Element Initiation (EI):

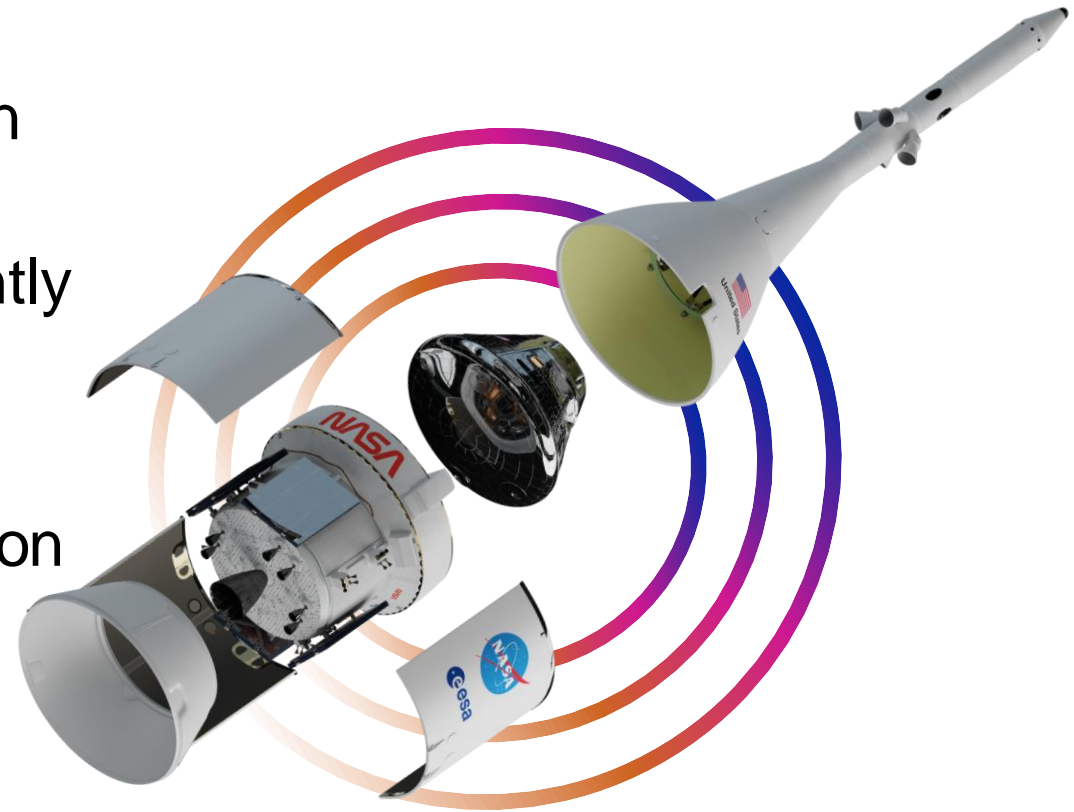
ESDMD reviews whether a potential concept provides a solution to needs or gaps identified in the Moon to Mars Architecture

Ensures that NASA invests in effective, sufficiently mature technologies and capabilities

## Mission Concept Review (MCR):

To evaluate the feasibility of the proposed mission concept(s) and its fulfillment of the Architecture needs and objectives.

Ensures NASA program/project readiness and feasibility to acquire systems



# Element Initiation Purpose



## **Overt integration point and commitment to formulate element based on identified architecture gap**

- ESDMD Associate Administrator approval at Directorate Program Management Council (DPMC)
- Coordination with partner mission directorates as appropriate

## **Affirms strategic alignment and coordination of architecture need, priority, and budget/programmatic *intent* to apply necessary resources for element formulation and includes:**

- Initial architecture use case & functions and a preliminary concept
- Potential international partner contribution and scope to next stage of bilateral study commitments
- Schedule, planning, and pre-project team to support Mission Concept Review (MCR) product development

## **Applied to large elements/systems that need to integrate across programs and projects**

- Not intended for small payloads, utilization, or similar contributions or partnerships

# ESDMD Pre-Formulation Elements

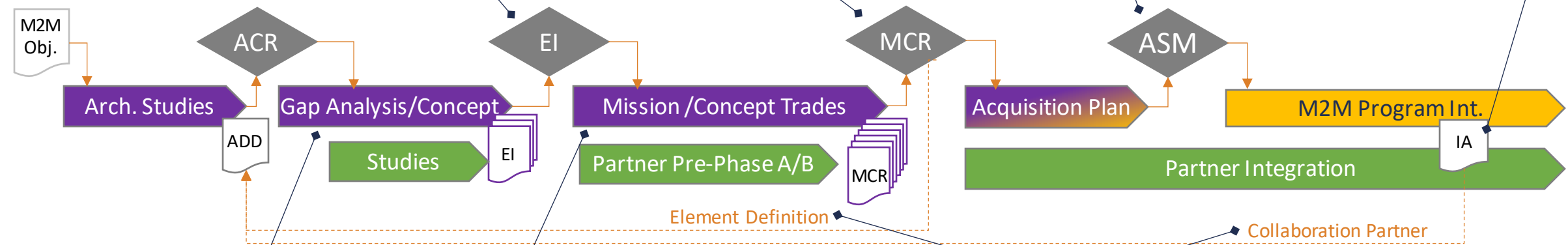


For International Partners

**Element Initiation:**  
overt decision to proceed with maturation of concept assessed for Arch. priority, budget, and strategy

**Mission Concept Review:** To evaluate the feasibility of the proposed mission concept(s) and its fulfillment of the Architecture needs and objectives.

**Acquisition Strategy Meeting:**  
Transition to Moon to Mars Program for implementation, completion of project roles & responsibilities leading to **Implementing Arrangement**



Feasibility studies and collaboration identify potential concept

Mission refinement to optimize for strategic value and functional achievement

Feedback incorporated into Architecture products as milestones occur

Document(s)  
 NASA Milestone  
 ESDMD Strategy & Architecture Office  
 ESDMD Moon to Mars Program  
 Collaboration Partner



# ESDMD Pre-Formulation Elements

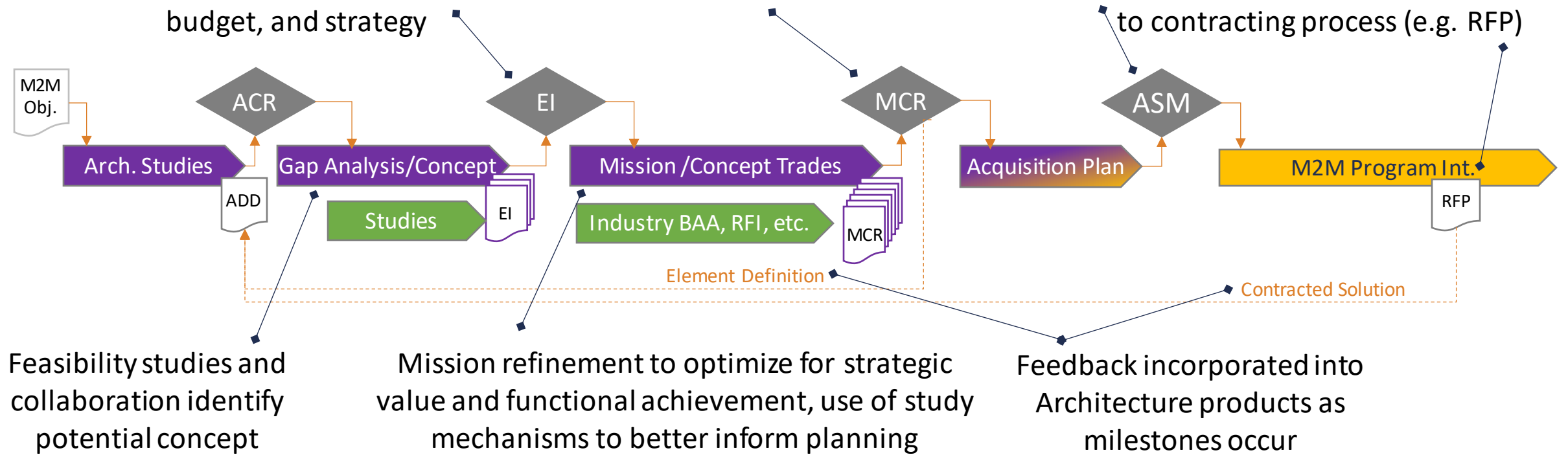


For Industry Partners

**Element Initiation:**  
overt decision to proceed with maturation of concept assessed for Arch. priority, budget, and strategy

**Mission Concept Review:** To evaluate the feasibility of the proposed mission concept(s) and its fulfillment of the Architecture needs and objectives.

**Acquisition Strategy Meeting:**  
Transition to Moon to Mars Program for implementation, completion of project roles & responsibilities leading to contracting process (e.g. RFP)



Feasibility studies and collaboration identify potential concept

Mission refinement to optimize for strategic value and functional achievement, use of study mechanisms to better inform planning

Feedback incorporated into Architecture products as milestones occur

Document(s)  
 NASA Milestone  
 ESDMD Strategy & Architecture Office  
 ESDMD Moon to Mars Program  
 Collaboration Partner

# Summary

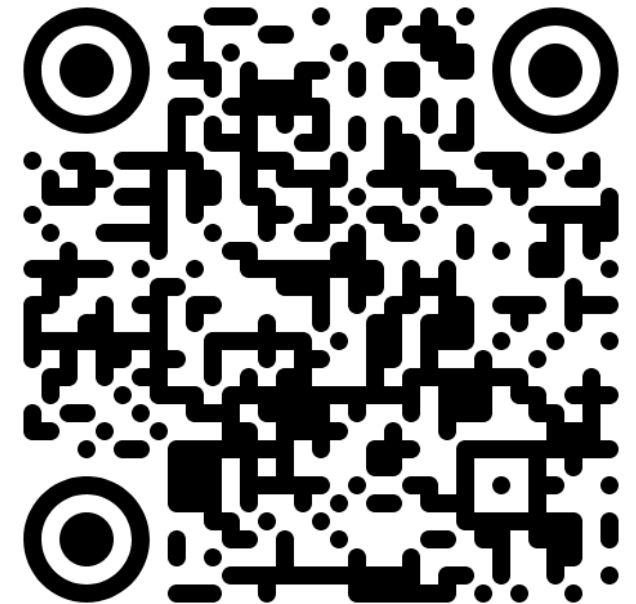


Moon to Mars Architecture, as a multi-decadal effort, demands a robust pre-formulation process to address long-term program and project sustainability

- SAO leads architecture and strategy until acquisition strategy
- M2MPO leads implementation and mission execution

ESDMD established product and process controls to support this architectural strategy and definition including:

1. Architecture Definition Documentation
2. Element Initiation milestone
3. Document incorporation through formal milestones
4. Repeatable and transparent pre-formulation process



*Architecture Website*

# International Partner Points of Contact

National Aeronautics and  
Space Administration



## **NASA Office of International and Interagency Relations (OIIR)**

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