



# Lunar Polar Prospecting Workshop

Team Introduction

June 15, 2018

# Teams

- You will divide into teams to flush out the details of a lunar ice prospecting campaign
- The campaign objective is to fill the mining strategic knowledge gaps so that the final knowledge state is sufficient to enable **mining operations within 10 years**
- Teams are organized by phase of the prospecting campaign
  - A) Remote sensing
    - Focused examination from lunar orbit
    - Cubesat & smallsat technology, drones
  - B) Low cost impactors & landers
    - Use of commercially available landers (e.g. NASA's CLP)
    - Impactors, dumb landers, geo-physical techniques
    - Informed by Phase A
  - C) Rovers/samplers/analyzers
    - Higher cost, sophisticated missions to gather definitive data in a few select locations
    - Informed by phases A & B
    - Sample return?

# Logistics

- Each of you has been assigned to a team focused on one of the 3 phases of the prospecting campaign
  - Teams 1, 2 & 3 are remote sensing
  - Teams 4, 5 & 6 are landers & impactors
  - Teams 7, 8 & 9 are rovers & samplers
- Each team has a facilitator assigned to record discussions and help prepare the team output presentation
- Teams 1, 4 & 7 will stay here, the other 6 will move to separate rooms

# Logistics, Cont'd

- Each team should choose a spokesperson to give the output briefing
- Any further organization and process is up to you
- Team output is a recommended set of missions and a roadmap
- Templates for this information will be provided
- The output briefing will consist of 2 charts
  - Mission summary chart
  - Roadmap chart

# Recommended Missions

Priority	Mission Description	Timeframe	ROM Cost (\$M)
1			
2			
3			
4			

## Other missions considered

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# Mission #1 Detail

- Objectives
  - Data produced
  - Strategic knowledge gaps addressed
- Pre-requisites
  - What missions/data/infrastructure needs to enable and/or inform this mission
- Description
  - Instruments
  - Spacecraft
  - Estimates mass
  - Concept of Operations
- Required technology development
- Timeframe
- ROM cost

# Mission #2 Detail

- Objectives
  - Data produced
  - Strategic knowledge gaps addressed
- Pre-requisites
  - What missions/data/infrastructure needs to enable and/or inform this mission
- Description
  - Instruments
  - Spacecraft
  - Estimates mass
  - Concept of Operations
- Required technology development
- Timeframe
- ROM cost

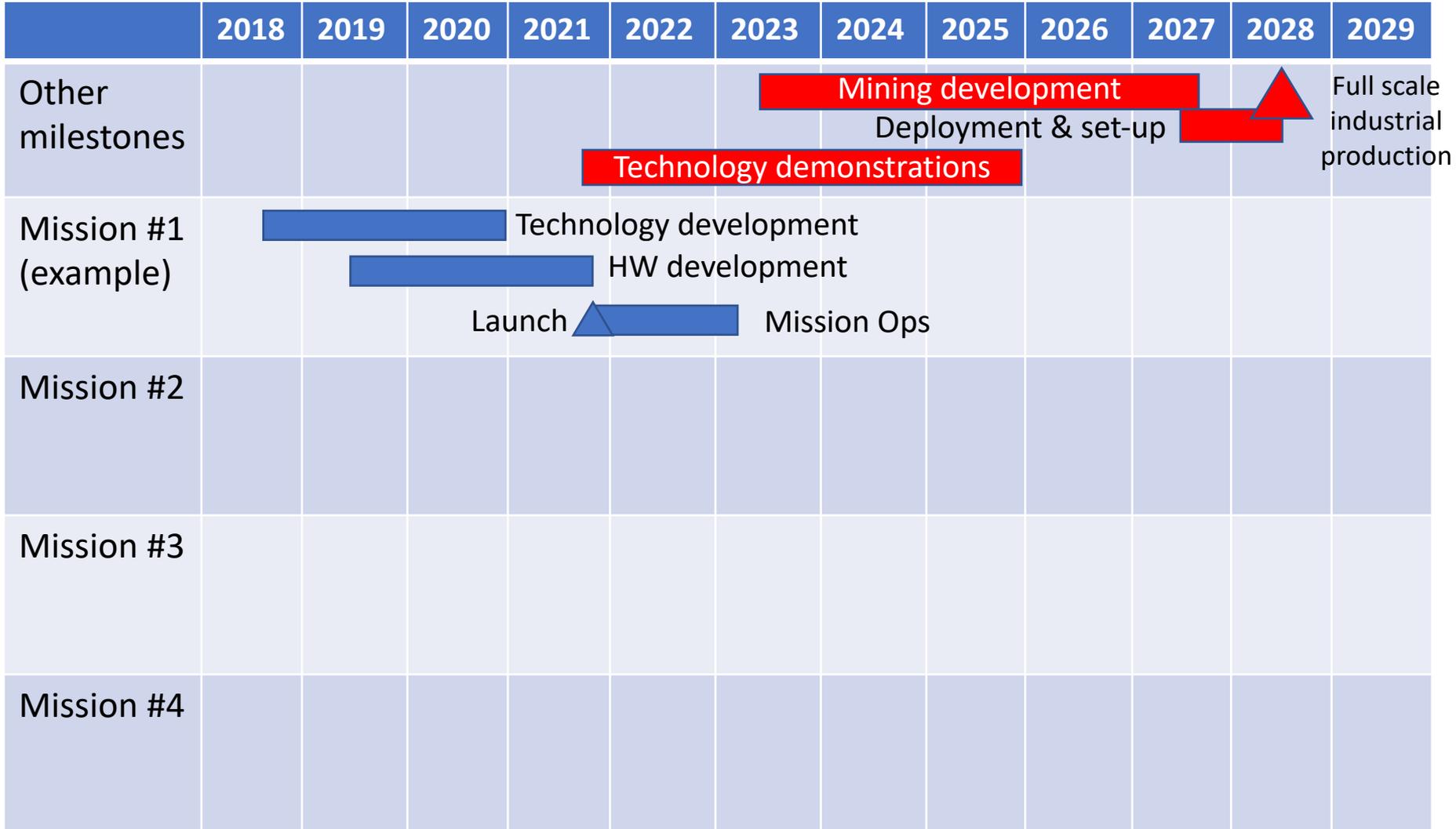
# Mission #3 Detail

- Objectives
  - Data produced
  - Strategic knowledge gaps addressed
- Pre-requisites
  - What missions/data/infrastructure needs to enable and/or inform this mission
- Description
  - Instruments
  - Spacecraft
  - Estimates mass
  - Concept of Operations
- Required technology development
- Timeframe
- ROM cost

# Mission #4 Detail

- Objectives
  - Data produced
  - Strategic knowledge gaps addressed
- Pre-requisites
  - What missions/data/infrastructure needs to enable and/or inform this mission
- Description
  - Instruments
  - Spacecraft
  - Estimates mass
  - Concept of Operations
- Required technology development
- Timeframe
- ROM cost

# Roadmap



# Any questions?

# Have Fun!