ISD- HRE Future preparation

Didier Schmitt, head of the Future Preparation department

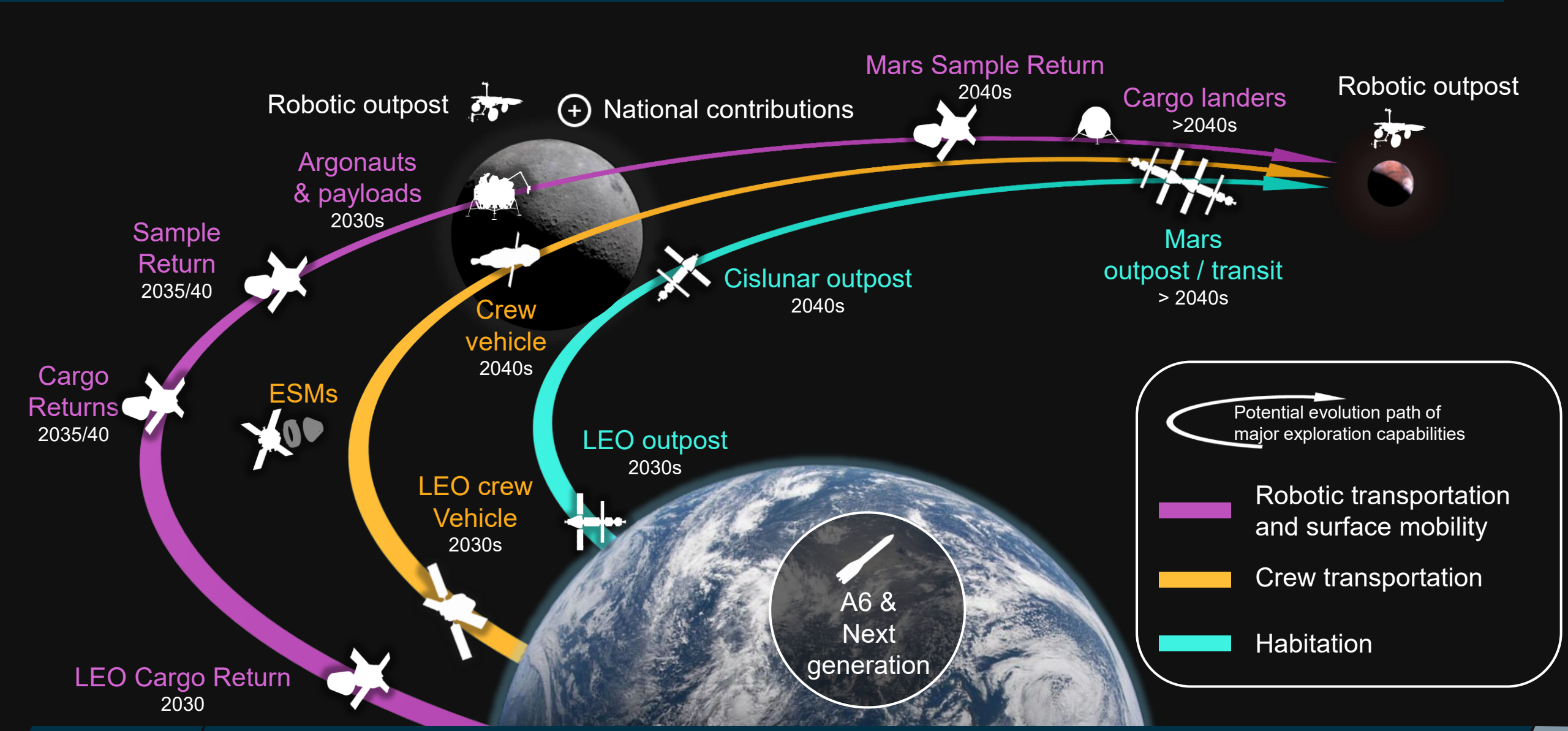
Strategy & communication, European & International stakeholder's relations, future missions and technologies (ExPeRT), IA/XR, Commercialisation

Day 1

16:35-17:00

EUROPEAN SPACE AGENCY

From LEO to Moon and Mars – A European integrated exploration outlook



Industrial opportunities in

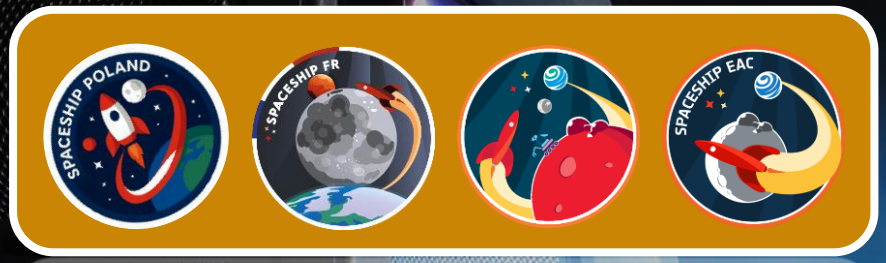
Exploration Preparation, Research and Technology

ExPeRT

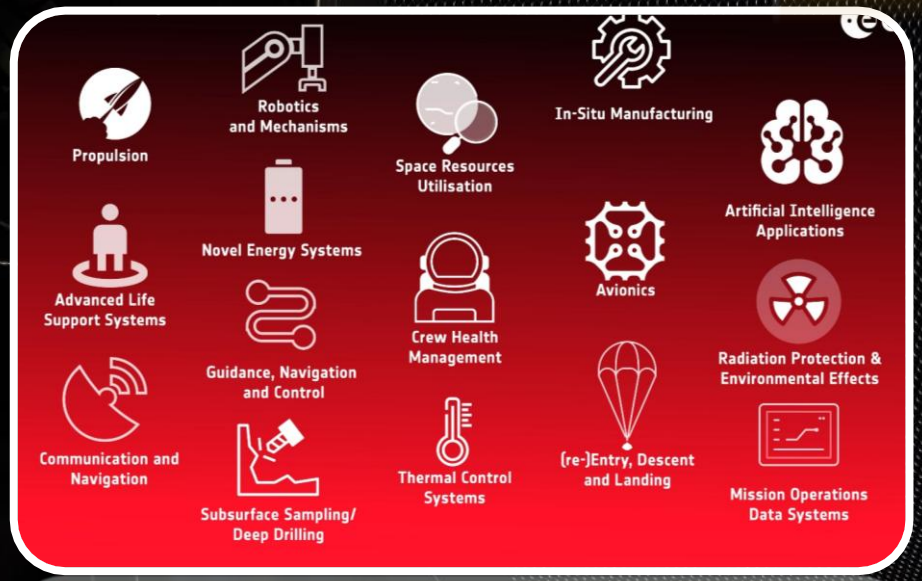
ELEVATING THE FUTURE OF EUROPE

ExPeRT - overview

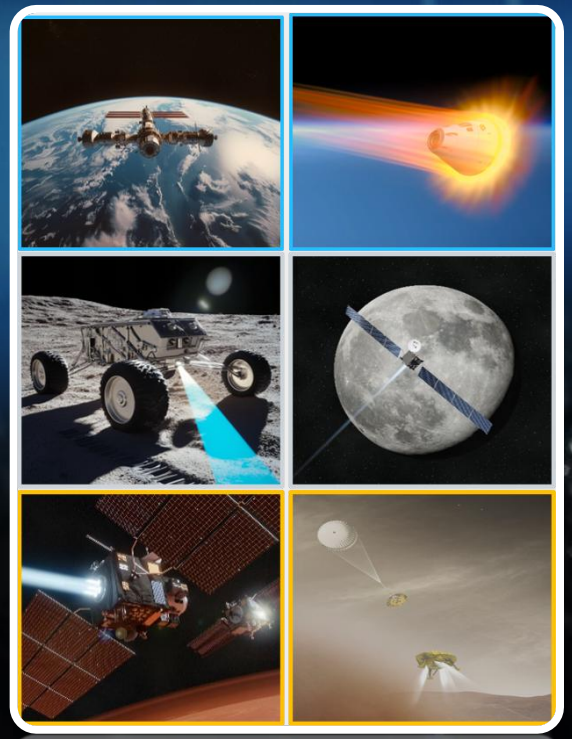
Spaceships



Technologies



Studies



Low Earth orbit

Assess potential End-to-End European-led solutions for Human space operations

ExPeRT

Ongoing studies & derisking

Post-ISS

2 x Pre-Phase A

Launch Abort System

2 // contracts

Life support / environmental control

3 x 2 Phases 1

CSG adaptation

Study with CNES

Opportunities

Crew Transportation System pre-developments

Pre-decisional IMM26

Launch Abort Demonstrator

Pre-decisional IMM26

Moon

Enable Europe's journey to Moon through critical technology maturation, mission and system studies

ExPeRT

Ongoing Studies

Moon Small (Explore) Missions 1st Batch

3 Phases A/B1

European Lunar Architecture Studies

3 parallel studies

Opportunities

European Lunar Powerpacks

System Study ITT planned Q4 2026

Absolute Surface Navigation

Pre-decisional

ITT planned Q4 2026

Robotic Outpost

Pre-decisional

ITT planned Q4 2026

Sample Return

Pre-decisional

ITT planned Q1 2027

Moon (Explore) Missions 2nd Batch

Pre-decisional IMM26

European Lunar Powerpacks

ExPeRT

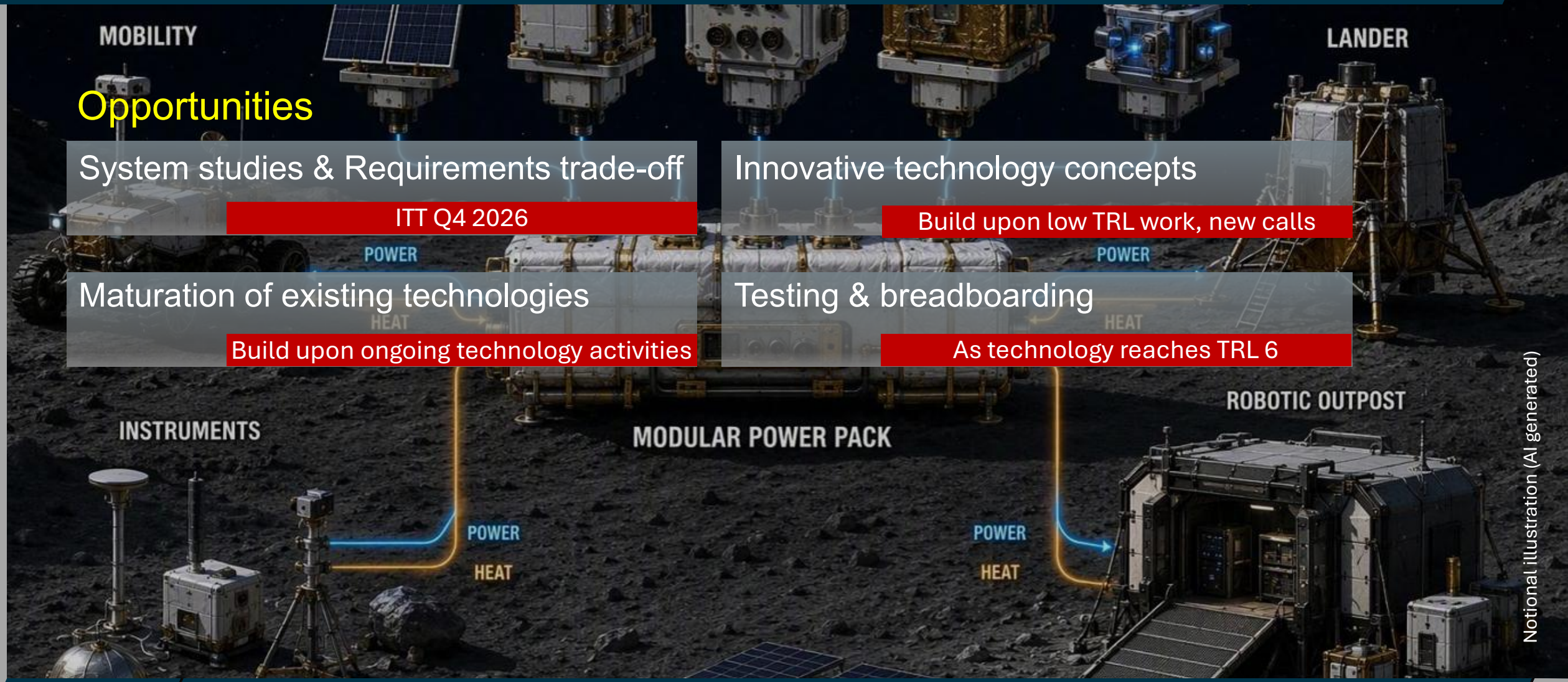
Opportunities

System studies & Requirements trade-off
ITT Q4 2026

Innovative technology concepts
Build upon low TRL work, new calls

Maturation of existing technologies
Build upon ongoing technology activities

Testing & breadboarding
As technology reaches TRL 6



Notional illustration (AI generated)

Lunar Robotic Outpost

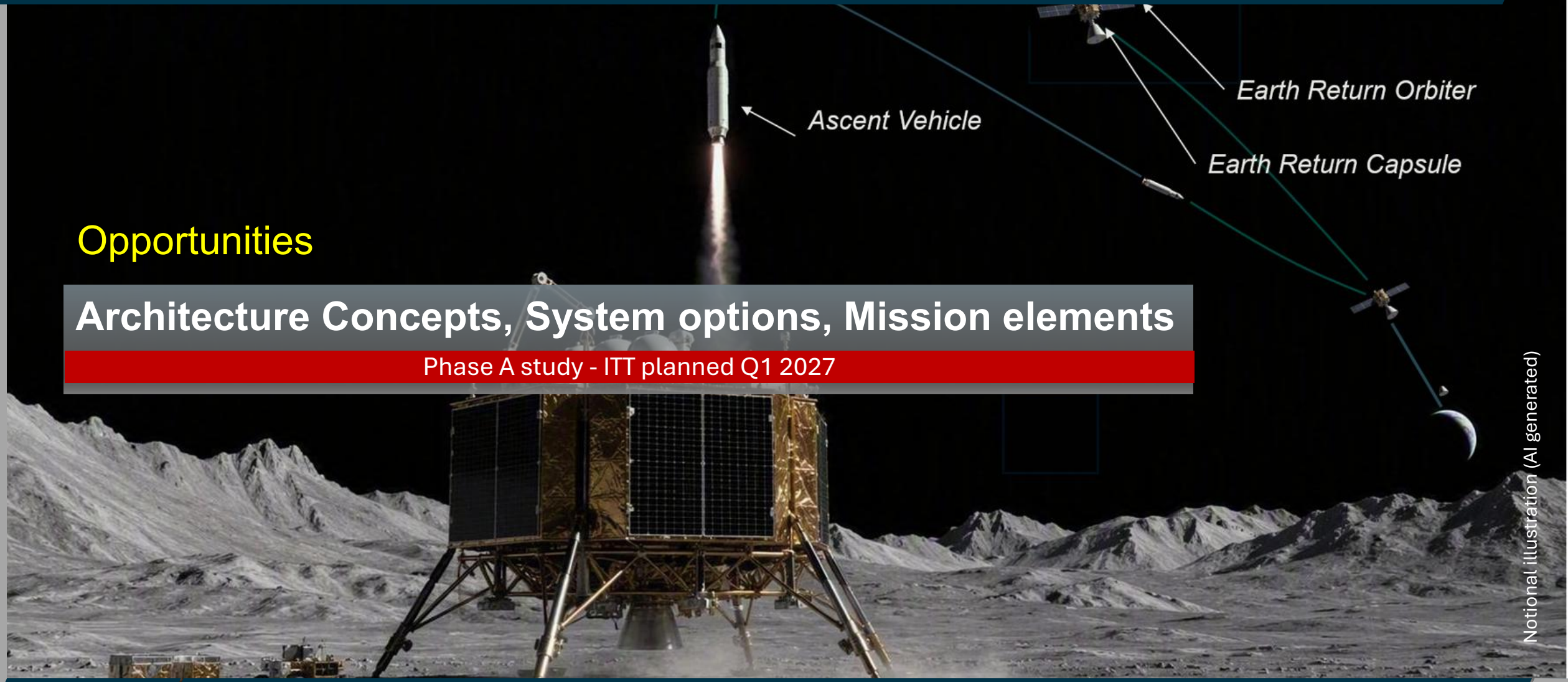
Pre-decisional

ExPeRT

Lunar sample / cargo return mission

Pre-decisional

ExPeRT



Notional illustration (AI generated)

Opportunities

Architecture Concepts, System options, Mission elements

Phase A study - ITT planned Q1 2027

Mars

Study options and enhanced capabilities needed for future Mars missions

ExPeRT

Ongoing Studies

Phase A
2 // contracts

Phase A
3 // contracts

Enabling Technology System Studies

Opportunities

ITT planned Q1 2027

ITT planned Q4 2026

ITT planned Q4 2026

Phase B1
ITT planned 2027

ESA Radioisotopes Power Systems maturation

Cross destination

ExPeRT

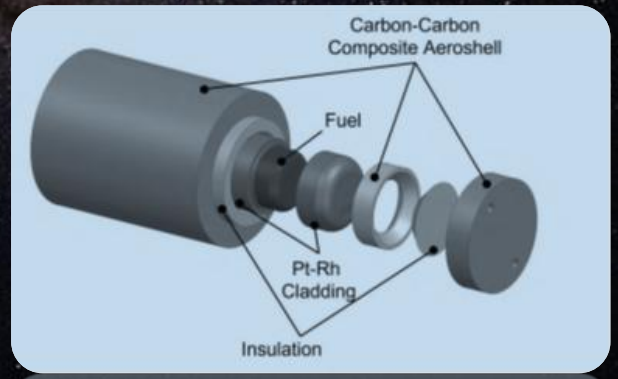
Opportunities

Initial study / planning - ESA Radio-Isotope Heater Units (RHU) manufacturing pilot plant

ITT Issued 26-Aug-2026

ESA Radioisotope Dynamic Generator (RDG) design study

Planned for 2027 (tbc)



ENDURE Am241 RHU Conceptual Design
(Image credit: University of Leicester)

RHU Lunar Night Survival Heating

Notional illustration (AI generated)

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THANK YOU!