

New Space Technologies to Enable NASA's Moon to Mars Journey

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GO

LAND

LIVE

EXPLORE

Rapid, Safe, and Efficient
Space Transportation

Expanded Access to Diverse
Surface Destinations

Sustainable Living and Working
Farther from Earth

Transformative Missions
and Discoveries



Advanced Propulsion



Advanced
Communication



Landing
Heavy Payloads



Gateway

Autonomous Operations

In-space Assembly/Manufacturing
In-space Refueling

Sustainable Power

Dust Mitigation

Precision Landing

Advanced
Navigation

Commercial Lunar Payload Services

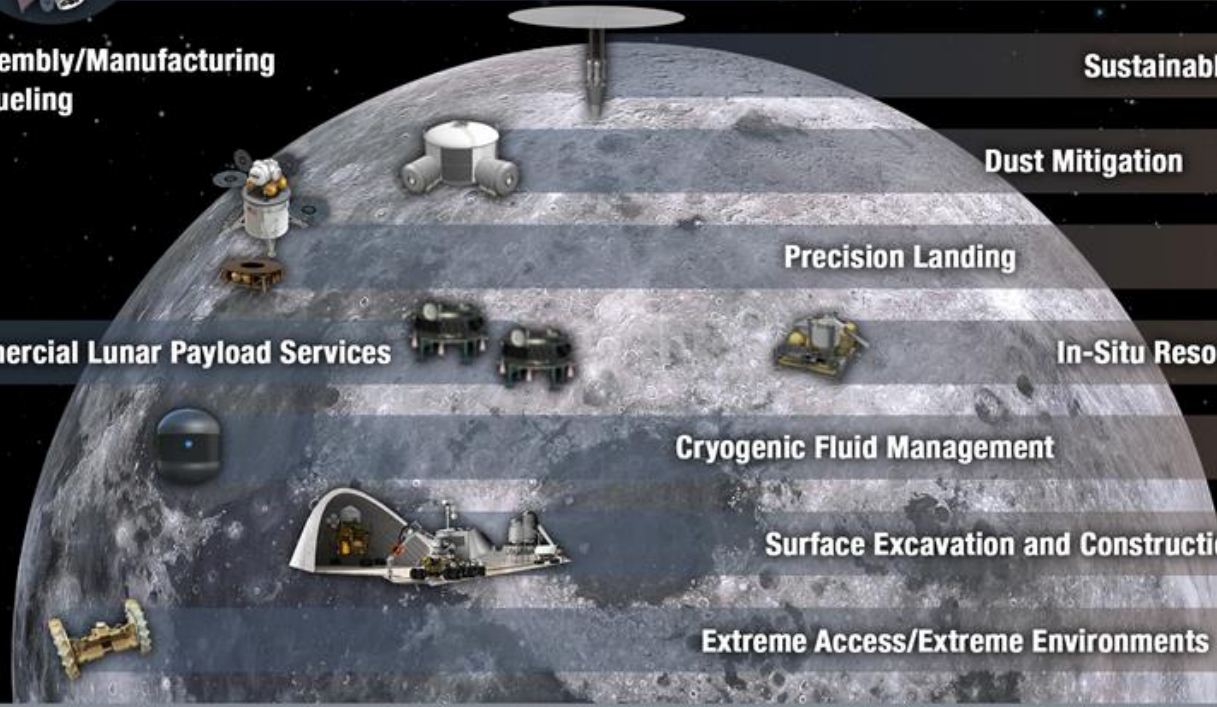
In-Situ Resource Utilization

Atmospheric
ISRU

Cryogenic Fluid Management

Surface Excavation and Construction

Extreme Access/Extreme Environments



2020

203X

Lunar Surface Innovation Initiative (LSII)

In Situ Resource Utilization

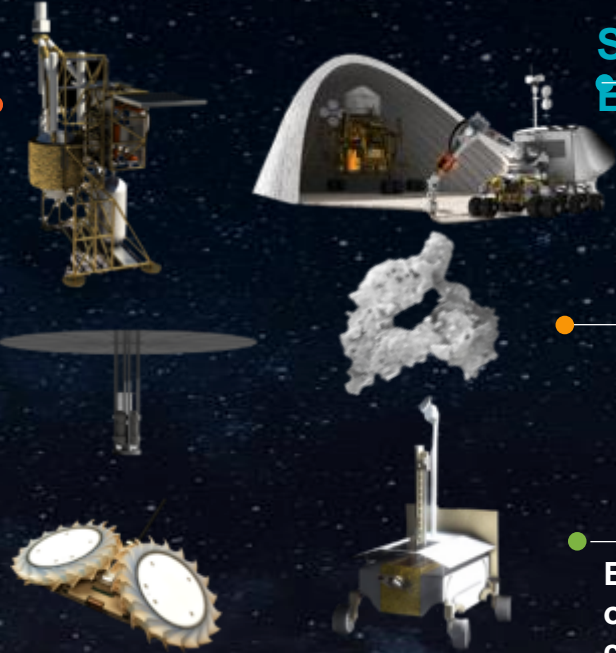
Collection, processing, storing and use of material found or manufactured on other astronomical objects

Sustainable Power

Enable continuous power throughout lunar day and night

Extreme Access

Access, navigate, and explore surface/subsurface areas



Surface

Excavation/Construction

Enable affordable, autonomous manufacturing or construction

Lunar Dust Mitigation

Mitigate lunar dust hazards

Extreme Environments

Enable systems to operate throughout the full range of lunar surface conditions

- STMD develops and performs demonstrations that allow the primary technology hurdles to be retired for a given capability at a relevant scale. While there may be additional engineering development required for additional scale-up, there should be none required for the foundational technologies.
- LSII will accelerate technology readiness for key lunar infrastructure capabilities enabling early technology demonstrations for early un-crewed commercial missions, as well as informing development of crewed flight systems.