



## Unique National Capabilities

- **Habitation and Logistic (pressurized) Modules:** ISS, Lunar Gateway, Artemis MPH
- **Drilling and Sampling Device:** SD2 (Sample Drill and Distribution for Rosetta Lander), DEEDRI (for ESA Lunar PROSPECT package), ExoMars Rover Drill and Sample collection system
- **Nanosatellites:** ArgoMoon (on board Artemis-1) LICIAcube (on board NASA DART mission)
- **Innovative mobility/locomotion:** specific applications like MPH module logistic relocation
- **Dexterous Manipulators:** STA (Sample Transfer Arm for MSR)
- **Comm& Nav: LuGRE** (GNSS receiver)

## Areas of Strategic Interest

- **In-Situ Resources Utilization – ISRU:** from **resource assessment** (e.g. IT leadership in ESA PROSPECT payload for volatiles detection) to demonstration of **extraction processes** (e.g. national ORACLE project for oxygen extraction) and regolith processing for in-situ manufacturing
- **Scientific observations** of the Earth as well as of astrophysical targets by payload operating on the Moon surface
- **Ground Analogues**
  - Bedrest, Isolation, Confinement
  - Simulation Chambers
  - Extraterrestrial Sample Curation Facility

## Areas of Strategic Interest

- **EMM – Earth Moon Mars** (observatory from the Moon surface of Earth, Mars and beyond )
  - **Polarization induced by interstellar dust**
  - **Electromagnetic Monitor in X-rays**
  - **Earth-Temperature Observatory**
- **Astrobiology**
- **ISS human research studies**
- **Surface and subsurface Study:** Mineralogy, Ice Signature, Dust Characterizations, Geology (Lava Tubes)
- **Radiation environment study**