

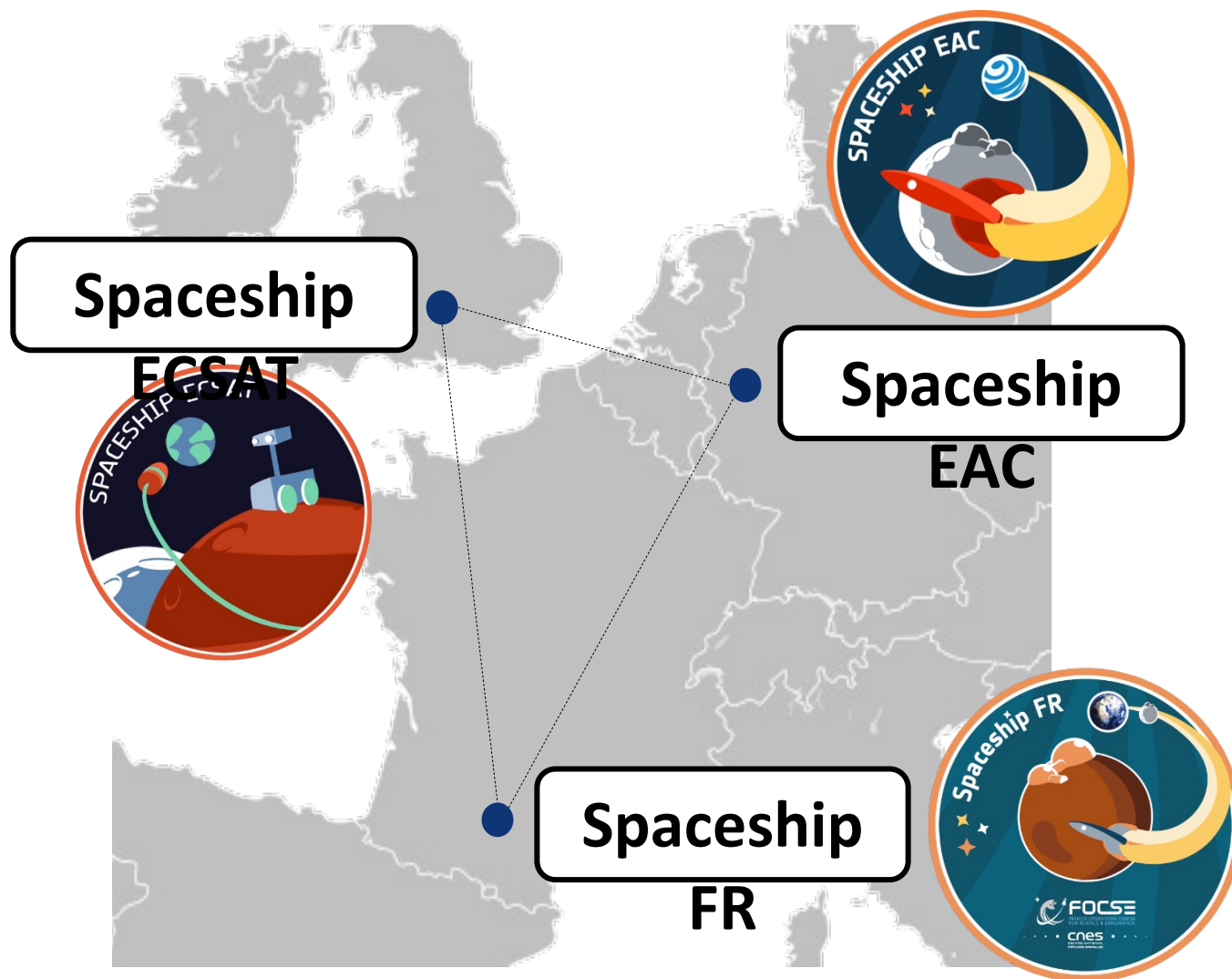


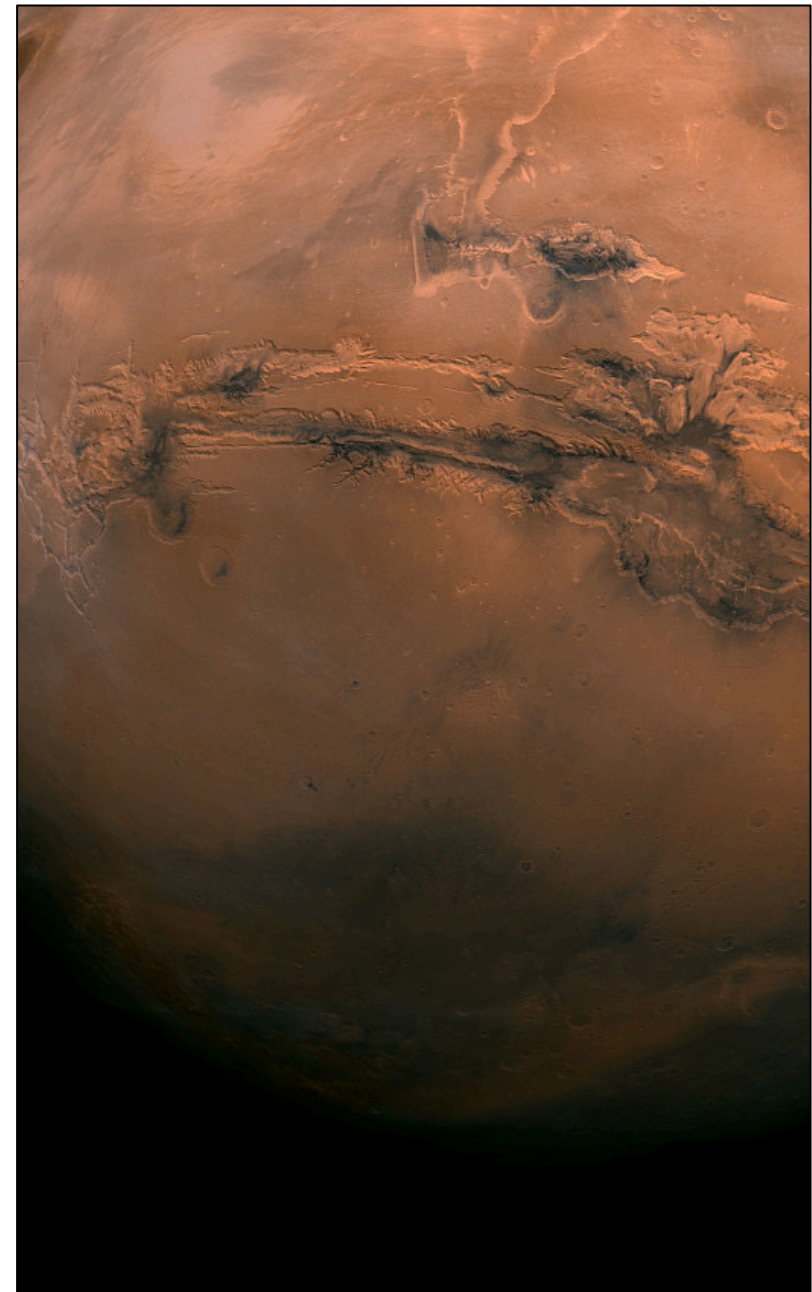
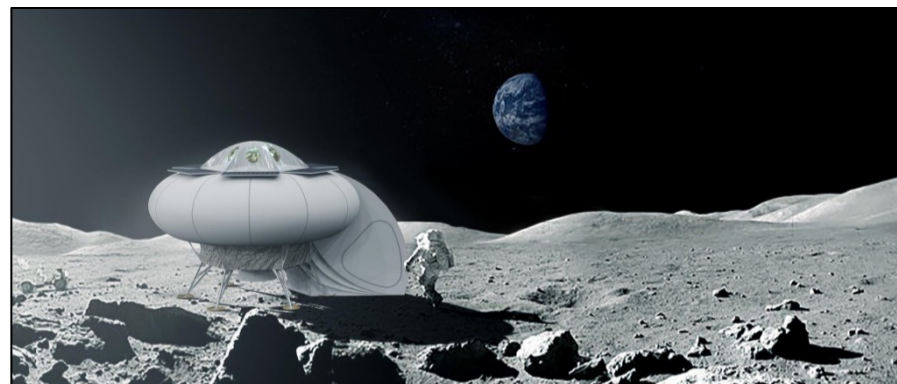
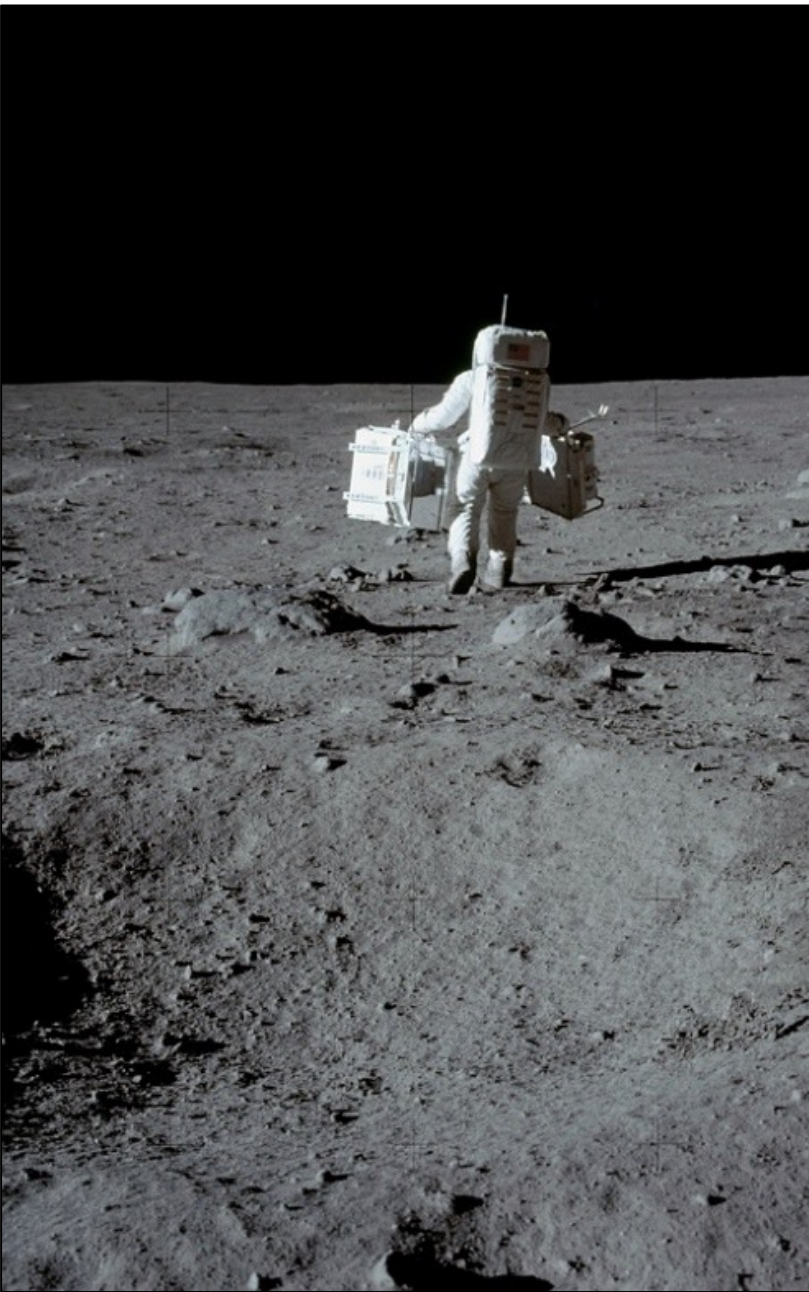
Spaceship FR,

PREPARING THE FUTURE OF SPACE EXPLORATION



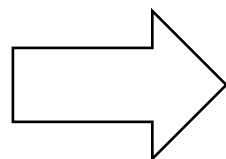
SpaceShip FR - Spaceships network







GLOBAL EXPLORATION ROADMAP

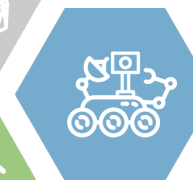


Structures and shielding

Life support

Crew health and performance

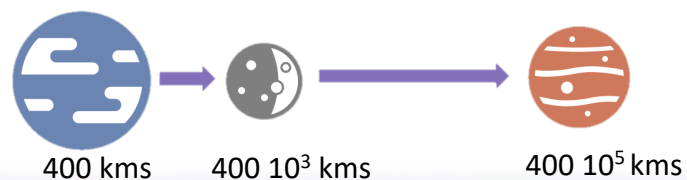
Power generation and energy storage



Automation and robotics

Autonomy and In-Situ Resources Utilization (ISRU)

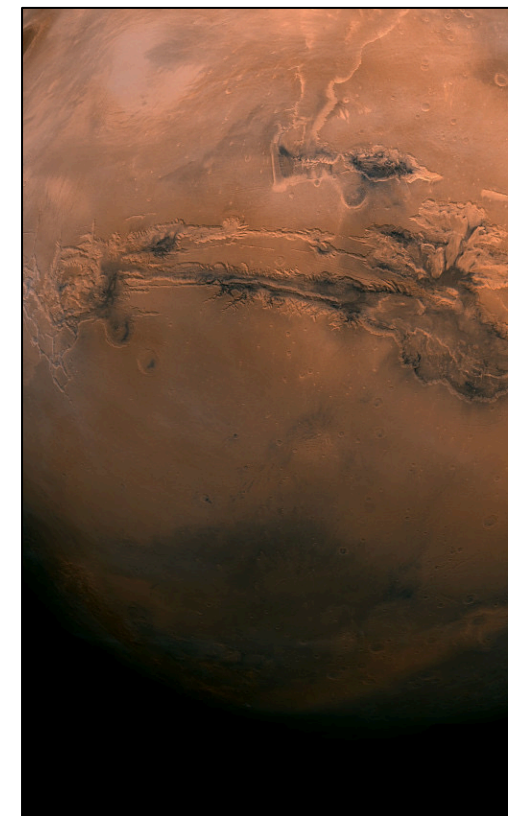
Digital and supervision

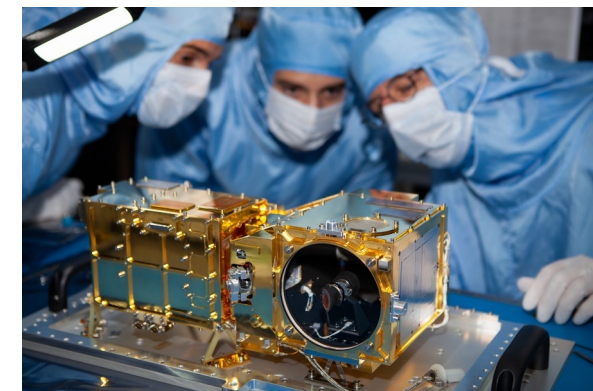
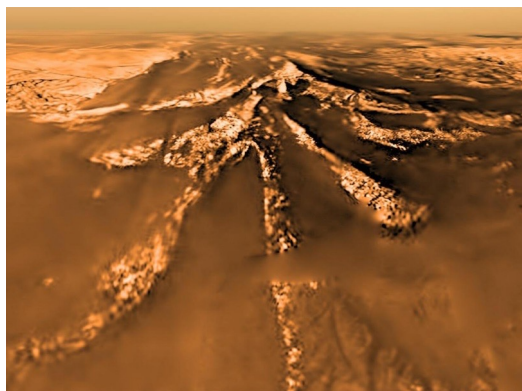


INSPIRE

FEDERATE

SUPPORT







Through partnerships,

Student projects, & more...



- **Co-financing**

- Research and Technologies
- Thesis



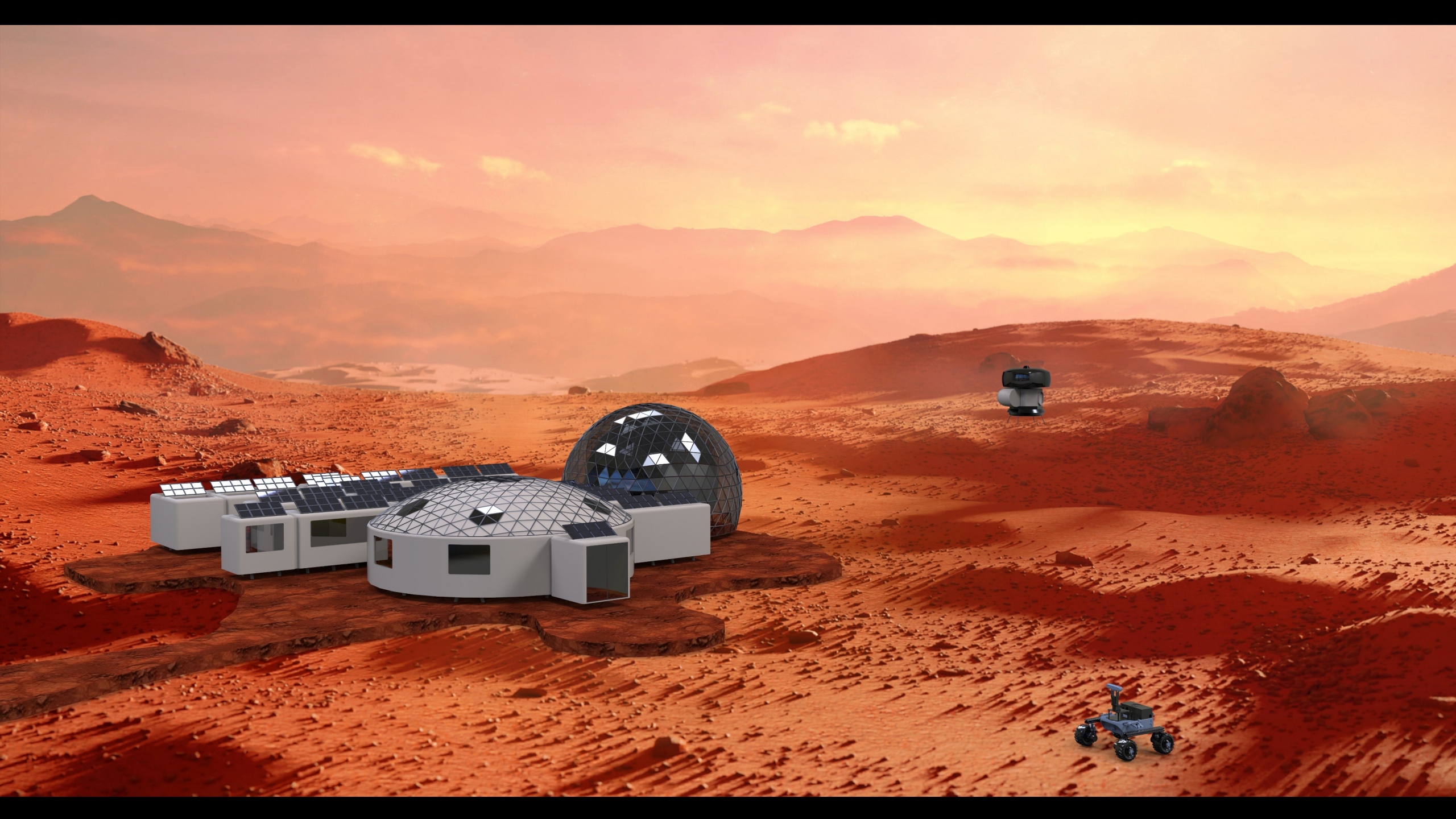
- **Expertise**

- TechTheMoon incubator
- Jury for different challenges



- **Posters and publications**







SpaceShip FR

Open and immersive structure working on the critical technologies needed for the future exploration of the Moon and Mars

Protect habitats and astronauts from radiation

On Earth, we have an atmosphere and a magnetic field that protect us from the radiative space environment. The Moon and Mars do not have one. Lunar habitats must be protected to reduce radiation doses and consequently the risk of developing radiation-induced cancers by astronauts.

Lunar habitat's power unit

Development of the power management system. By defining the operational modes of the habitat, we will be able to define the size of the solar panels and the batteries needed. This will help to define the overall electrical subsystem.

In Situ Ressource Utilization (ISRU)

To assist astronauts in characterizing resources available on the lunar surface, different imaging techniques are under study. The aim is to identify metals (Iron, Titanium and Aluminum) for mineral exploitation by performing a surface mapping.

Design of the Healthcare Room

Using design fiction, engineers, medical professionals and designers write stories that will describe how the healthcare room will look like. Moreover, the objective is to question what is it to be healthy on Mars or on the Moon.

Astronaut's Digital Twin

To insure the success of the Moon and Mars missions, the astronaut must have personalized and predictive health in order to be autonomous. The digital twin is a possible solution for health monitoring.

Food management

Production, processing and storage of healthy and balanced food to meet the astronauts nutritional needs.

Stress Management for Astronauts

Astronauts living on the Moon and Mars will be exposed to various stressors, so a series of adequate measures shall be taken to ensure that their psychological well-being is not compromised, which could put the mission at risk.

AI4U: a virtual assistant for astronauts

Development of an AI assistant to support astronauts with their work and with habitat supervision as well as to be a countermeasure against isolation, stress and mental load.

Lunar Habitat in VR

The goal of this experiment is to allow designers to improve the lunar habitat. Through VR, it will be possible to spend a day in the skin of an astronaut in his habitat and more.

Environmental Control & Life Support System for a shelter-habitat

It provides or controls atmospheric pressure, oxygen levels and water supply. This kind of system also collects and processes waste to recycle it and to avoid losing resources.

Robotic Assistant for Astronaut

Conceive different tracking algorithms allowing the rover to follow the astronaut autonomously during the EVA on the Moon surface. Scout, Support and Explore are its main missions to improve efficiency and push the boundaries of space exploration.



See you on Mars!

(Or in Toulouse)



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