

# Cirkulær økonomi og rummet

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#### Forside

Hvem vi er

#### ▼ Mara-Naboisho løve projekt

- Baggrund for projektet
- Løver under pres
- Projektområde
- Satellit tracking af løver

Naboisho Conservancy

Tidligere løveprojekt

Sponsorer/Bidragydere

Støt projektet

Links

Kontakt os

Presse



[English language version](#)







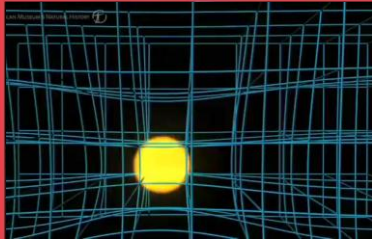
# Space19



# PROGRAMMATIC PILLARS



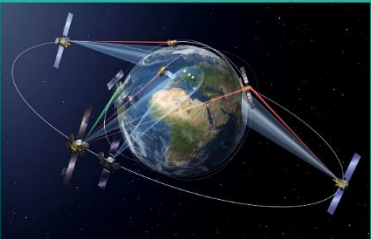
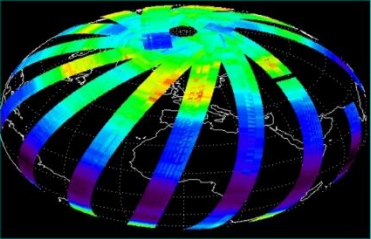
## SCIENCE AND EXPLORATION



## SAFETY AND SECURITY



## APPLICATIONS



## ENABLING AND SUPPORT



# Subscribed overall volume 14,5 B€

(mandatory activities for 3 years included)

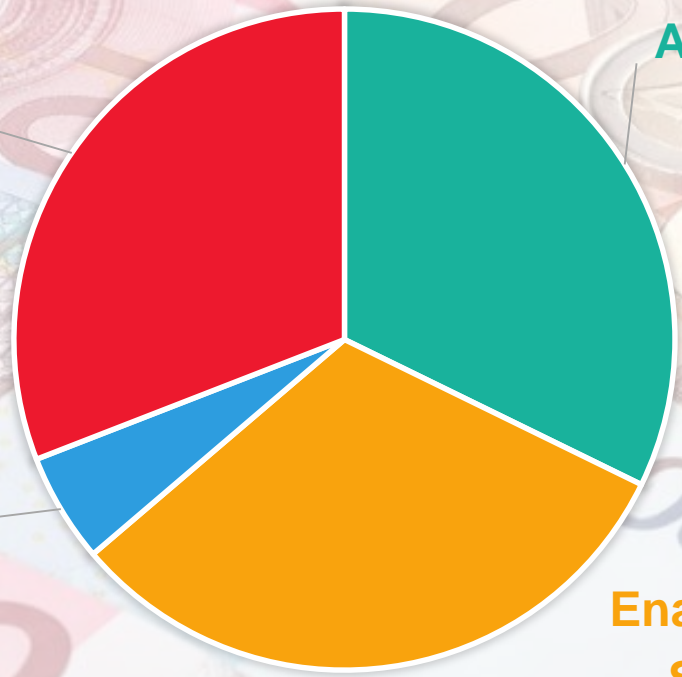


Science and  
Exploration  
31%

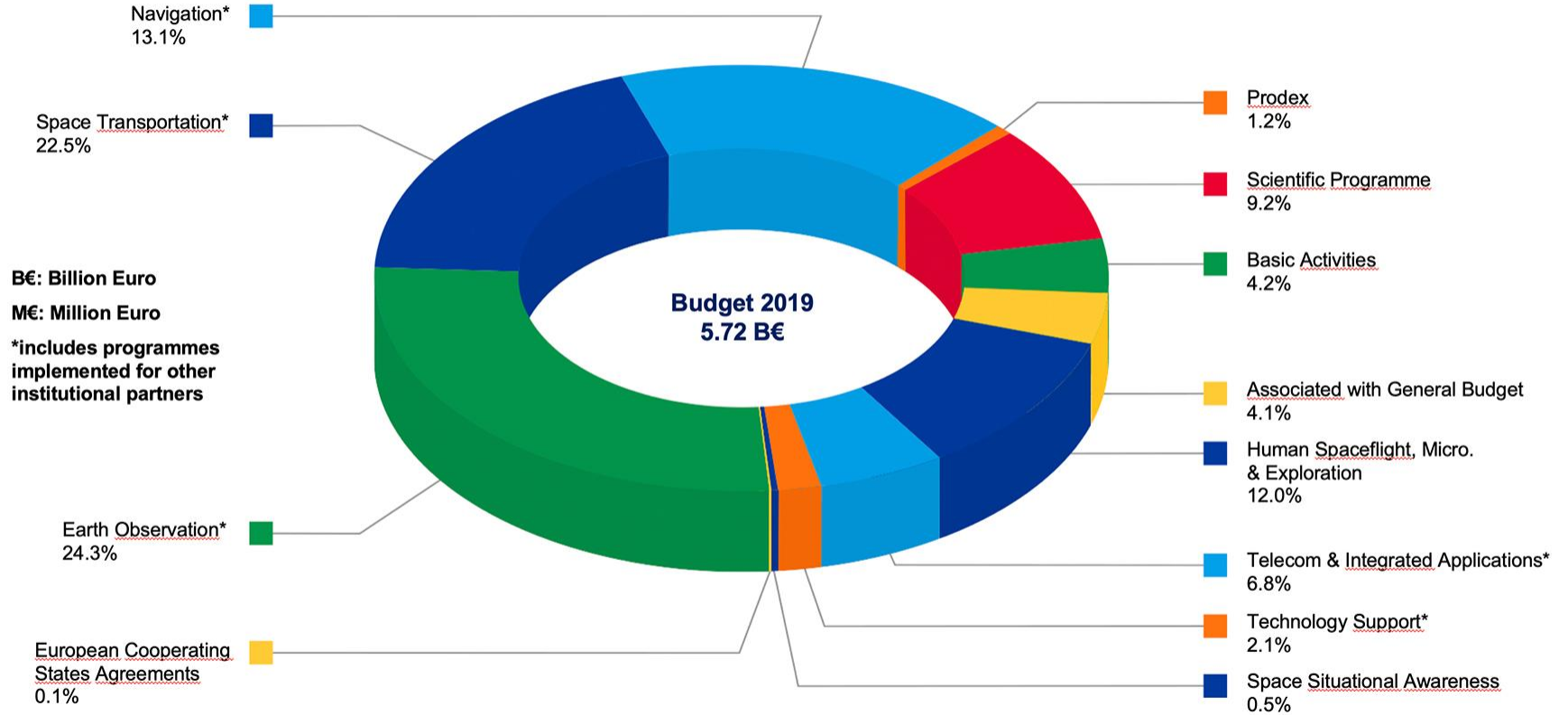
Applications  
32%

Safety and  
Security  
5%

Enabling and  
Support  
32%



# ESA budget by domain for 2019: 5.72 B€







**adm aeolus**

**cryosat 2**

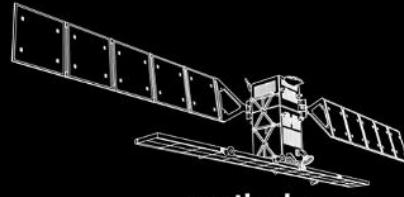
**swarm**

**earthcare**

**gocce**

**smos**

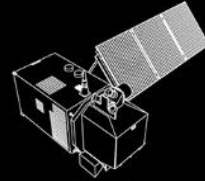
LIVING PLANET  
EARTH EXPLORERS



**sentinel-1**



**sentinel-6**



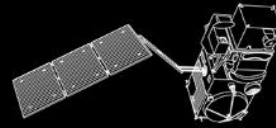
**sentinel-2**



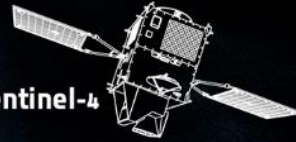
**sentinel-5**



**sentinel-5p**



**sentinel-3**



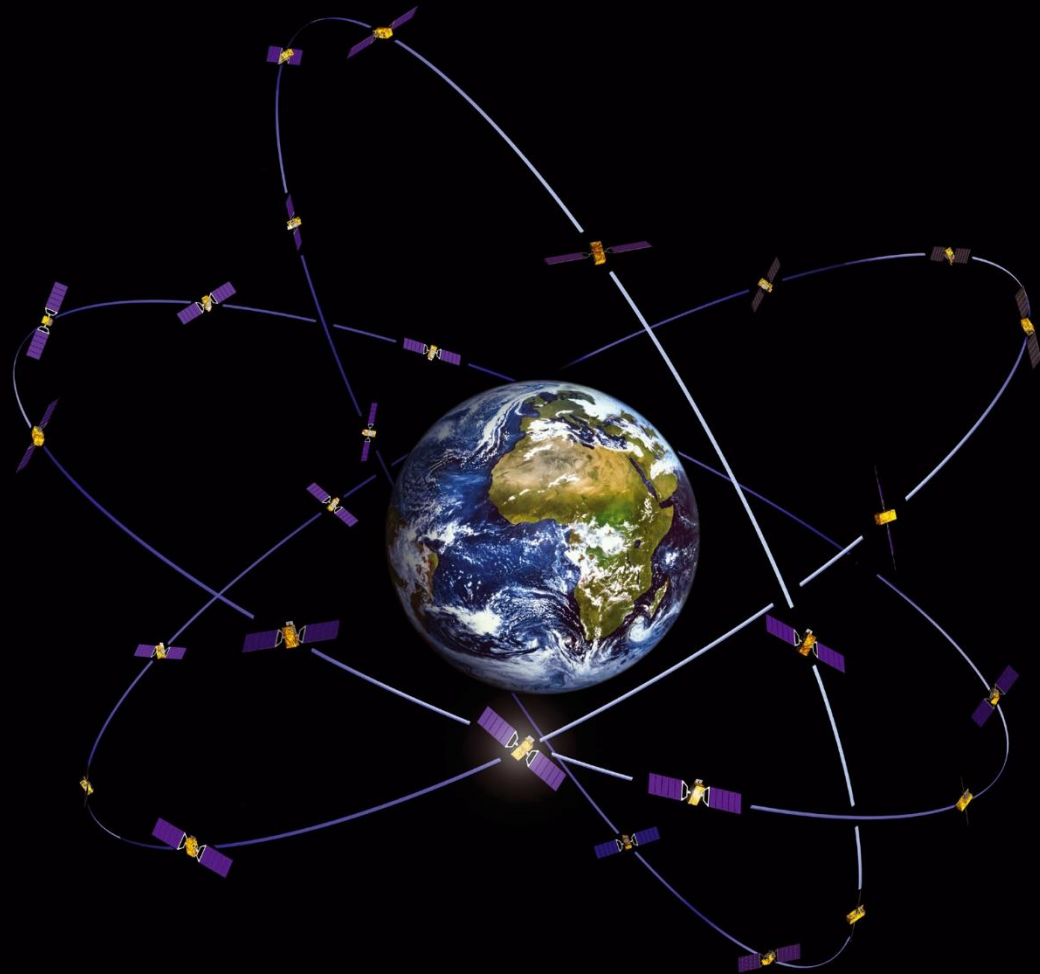
**sentinel-4**



# TELECOMMUNICATIONS

# 5G

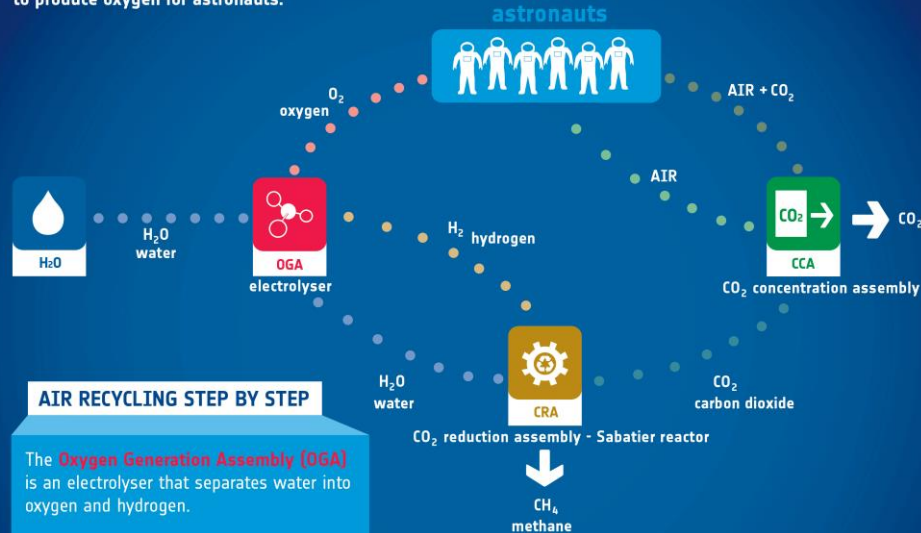






## → ADVANCED CLOSED LOOP SYSTEM

Advanced Closed Loop System produces water from carbon dioxide. The water then is used to produce oxygen for astronauts.



### AIR RECYCLING STEP BY STEP

The **Oxygen Generation Assembly (OGA)** is an electrolyser that separates water into oxygen and hydrogen.

The **Carbon dioxide Concentration Assembly (CCA)** removes and concentrates carbon dioxide from the air.

The **Carbon dioxide Reprocessing Assembly (CRA)** is a Sabatier reactor mixing hydrogen and carbon dioxide to form water and methane. The methane is vented into space.

*ACLS can generate about 50% of the water needed for oxygen production on the Space Station.*





MICRO-ECOLOGICAL LIFE SUPPORT SYSTEM ALTERNATIVE











### Cornerstone 1

Humans in Low Earth Orbit

### Cornerstone 2

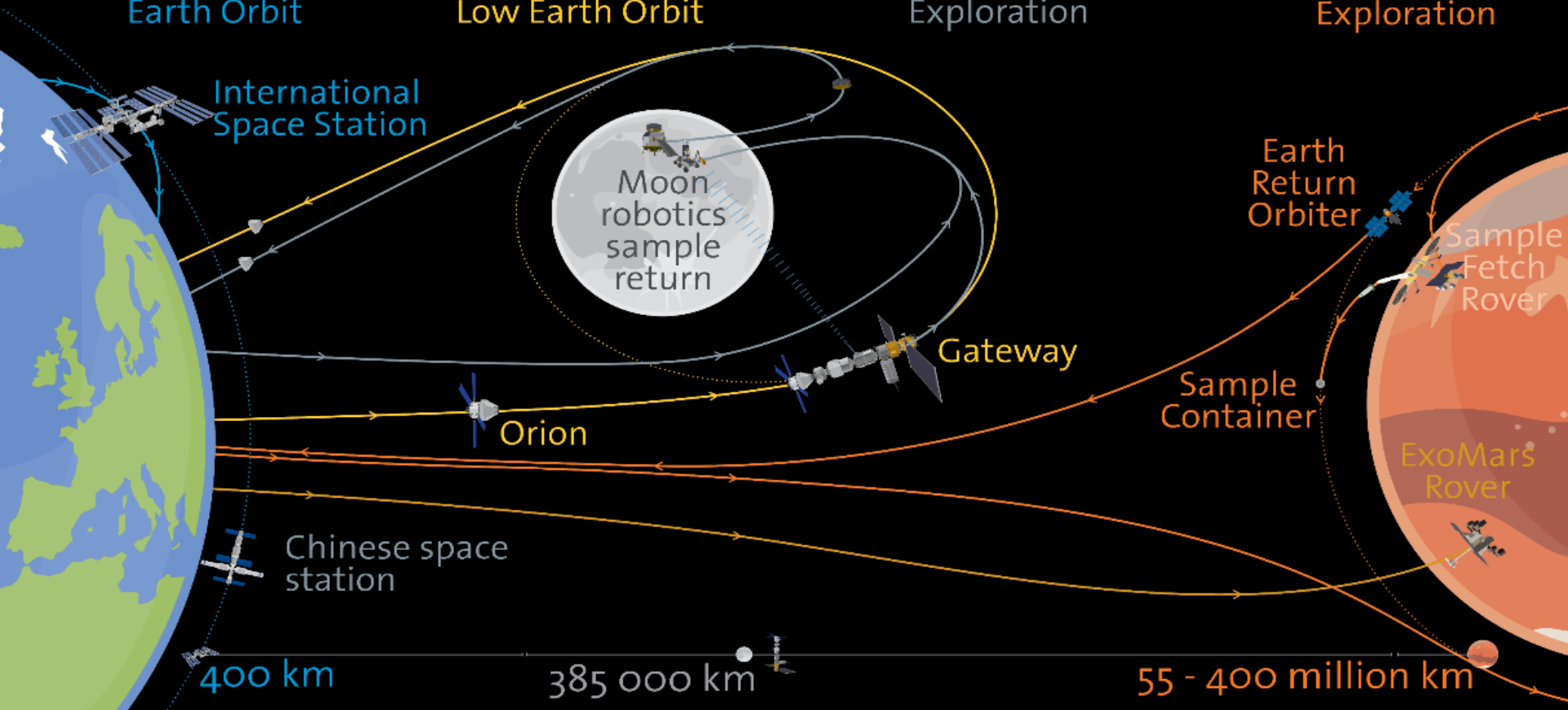
Humans beyond Low Earth Orbit

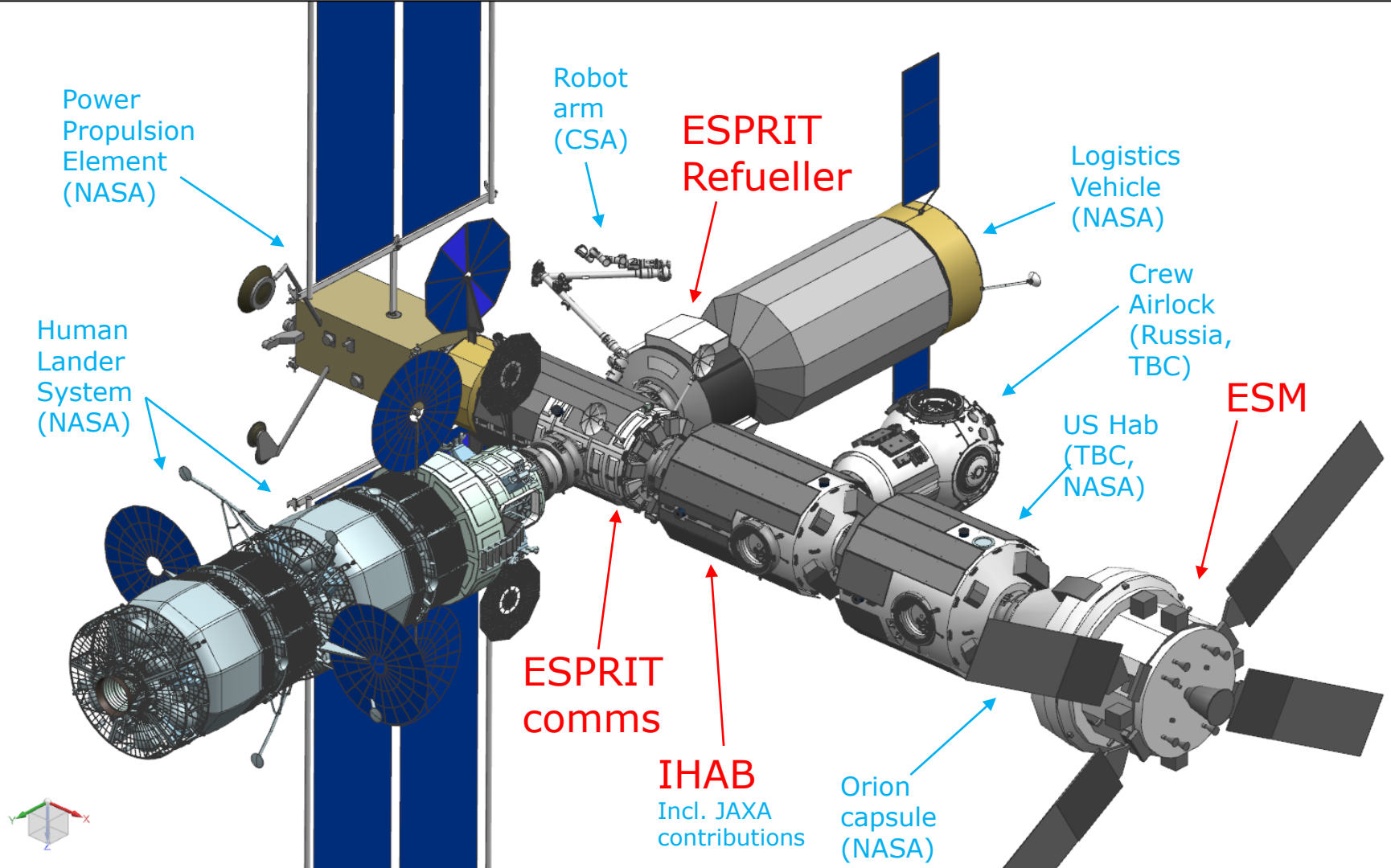
### Cornerstone 3

Robotic Lunar Exploration

### Cornerstone 4

Robotic Mars Exploration





**Gateway + robotic missions**  
= sustainable human exploration





25 April 2019

## Water recycling in space and a circular beer production

Success story



20 March 2019

## Finding solutions for cardiovascular disease in space

Success story



21 February 2019

## Innovative space station technology for the LNG Boil-Off Gas Reliquefaction Market

Success story

**3** GOOD HEALTH AND WELL-BEING 

**6** CLEAN WATER AND SANITATION 

**7** AFFORDABLE AND CLEAN ENERGY 

**9** INDUSTRIES, INNOVATION AND INFRASTRUCTURE 

**11** SUSTAINABLE CITIES AND COMMUNITIES 

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION 

**15** LIFE ON LAND 

