

# WANTED: BUSINESS IDEAS FOR LUNAR ECONOMY APPLICATIONS

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03/05/2023

# We are going back to the Moon.....



Credits: BBC Science Focus Magazine

- 400+ missions in the next 10 years
- 137 \$B investment ... and growing

... and stay there

A dedicated **COM and NAV infrastructure** serving many moon missions

For a more efficient return to the Moon

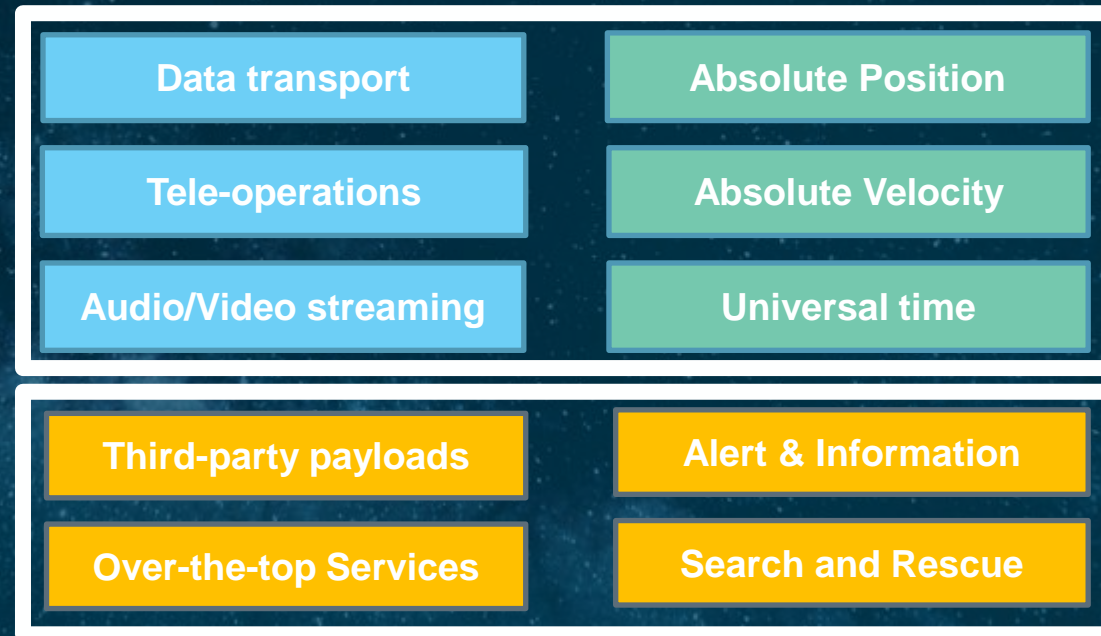
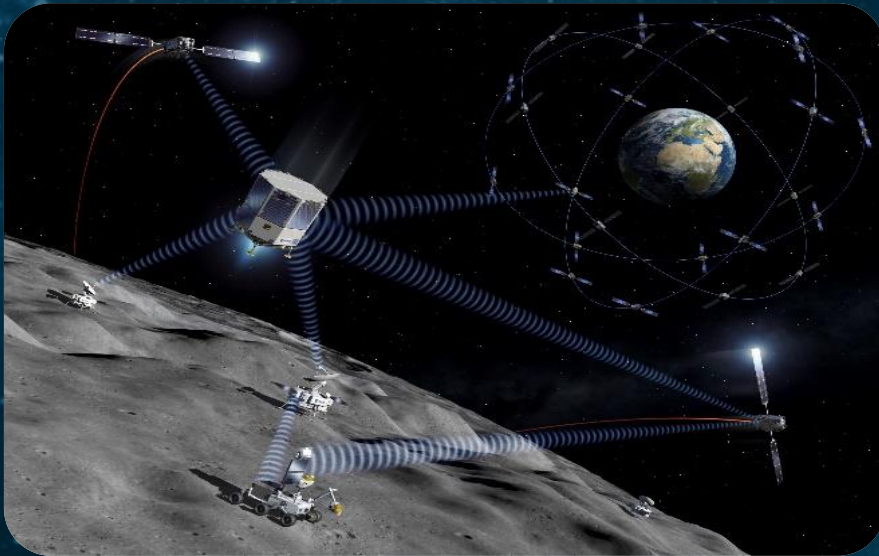


Opportunity to kick start **new services...**

... and contribute to Moon economy

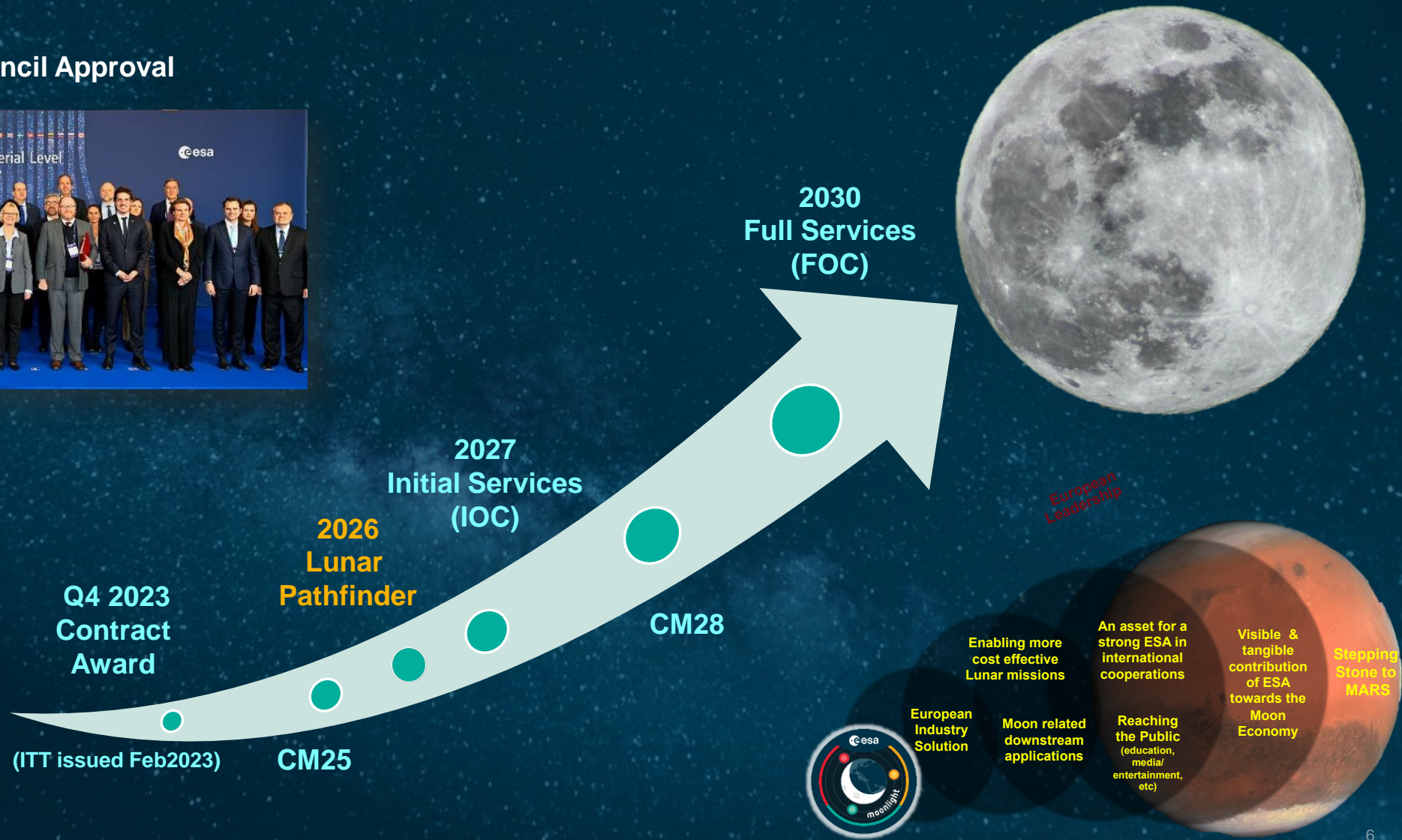


## Service development Approach: ESA supporting infrastructure development and acting as Anchor customer

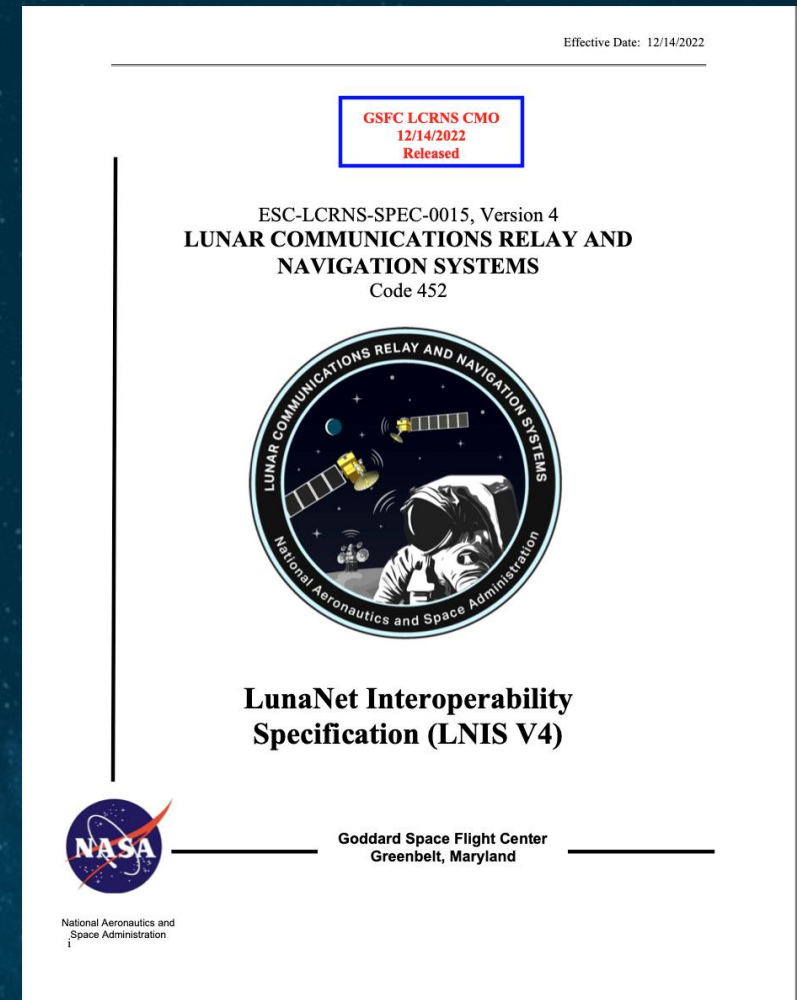


- Public-Private Partnership: Private sector as service provider
- A dedicated constellation of satellites around the Moon

## 2022 Ministerial Council Approval

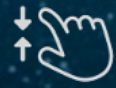









- Key to ensure an efficient return to the Moon
- LUNANET: ESA is working closely with NASA on the definition of the joint lunar Communication and Navigation international standards. Issue Dec 2022
- Now submitted to international bodies for become internationally approved across many space agencies

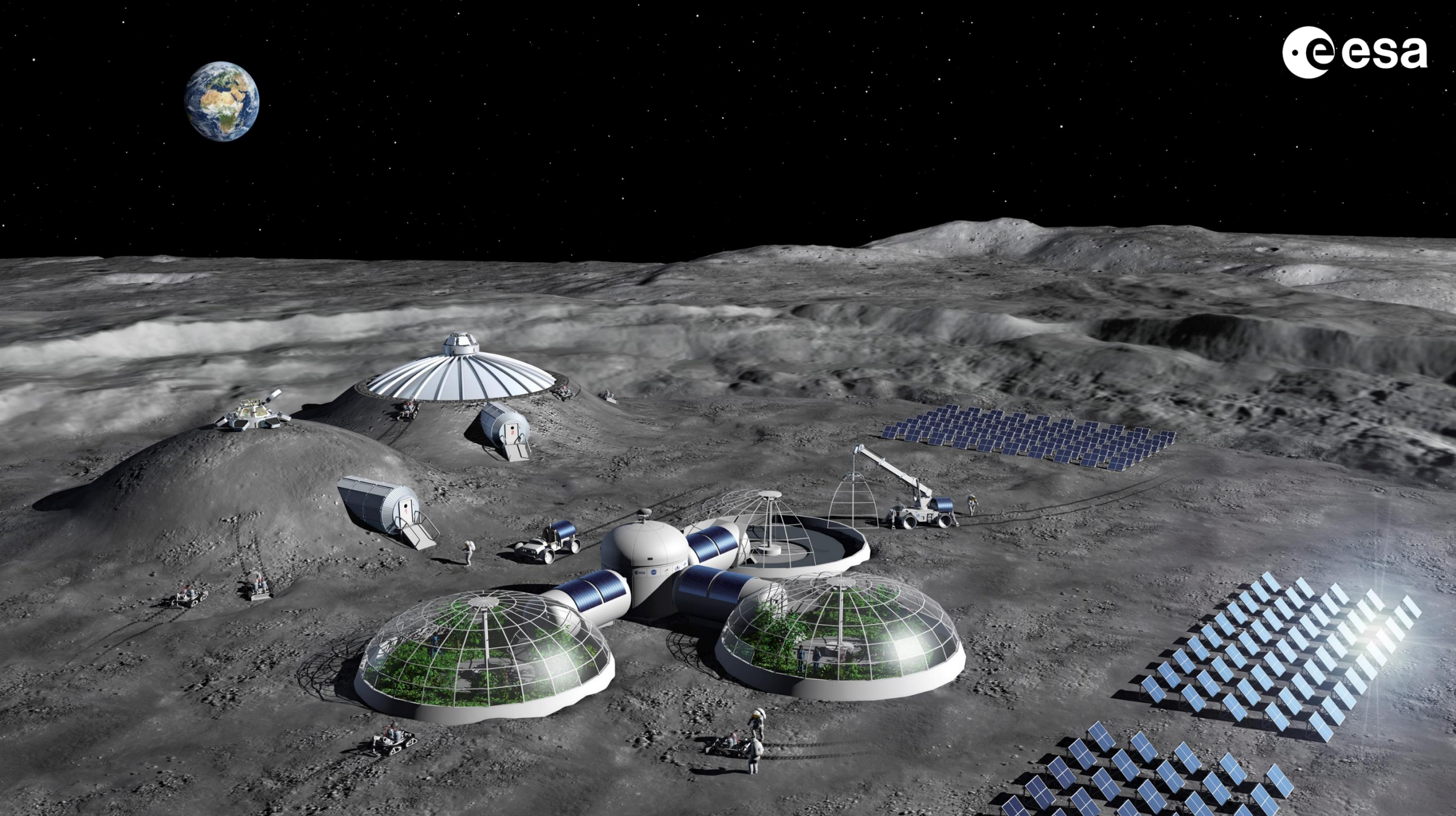


*Technical Cooperation Moonlight/LunaNet*

 Flexible landing site	 Higher Service Availability	 Higher Autonomy of Operations	 Faster Orbit Determination (75%)
 Longer Surface Operations	 Operational Cost Savings	 Higher Science Return (more payload/data)	 New mission concepts

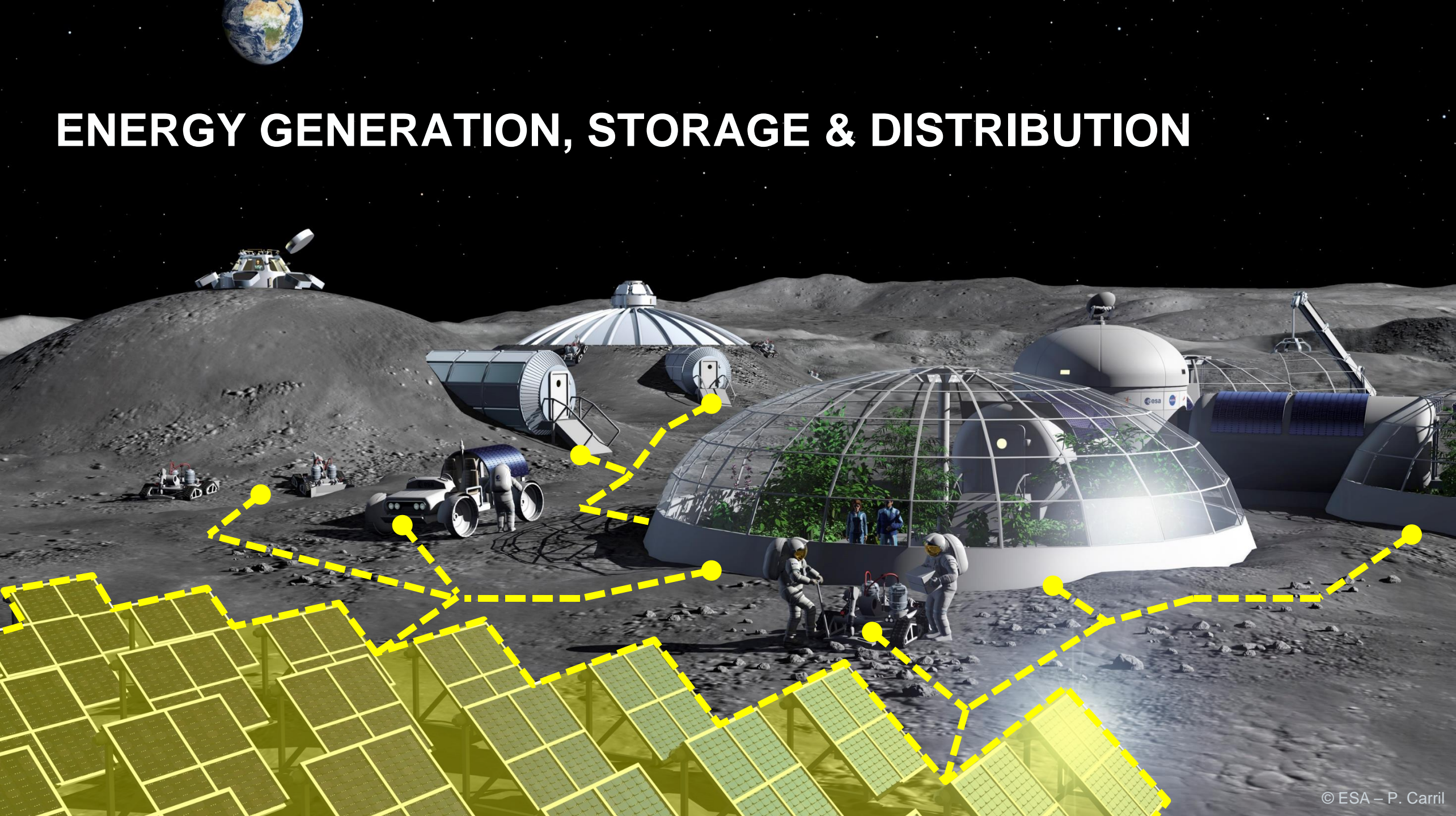
 Smaller Terminal Less Power	 More data for same Terminal	 Backup/Redundancy	 Risk Reduction
 Higher Nav Accuracy	 Higher landing accuracy	 Navigation over night & shadow	 Simpler on-board Nav sensors

- **A key infrastructure to boost lunar economy** (lunar mining, support resources utilisation, key for a sustainable lunar presence, etc)
- **Allowing new exploration missions** with enhanced orbital, landing and surface positioning accuracies (landing on peaks of eternal lights, etc)
- **A major enabler for new lunar scientific applications** (lunar seismology, lunar gravitation and reference frames, astronomy, fundamental physics, etc)
- **A new paradigm for Moon landing operations**
- **Enables LunaSAR and lunar emergency services**
- **Unlocking mission scope** though increased data volumes and transfer capabilities





# ENERGY GENERATION, STORAGE & DISTRIBUTION



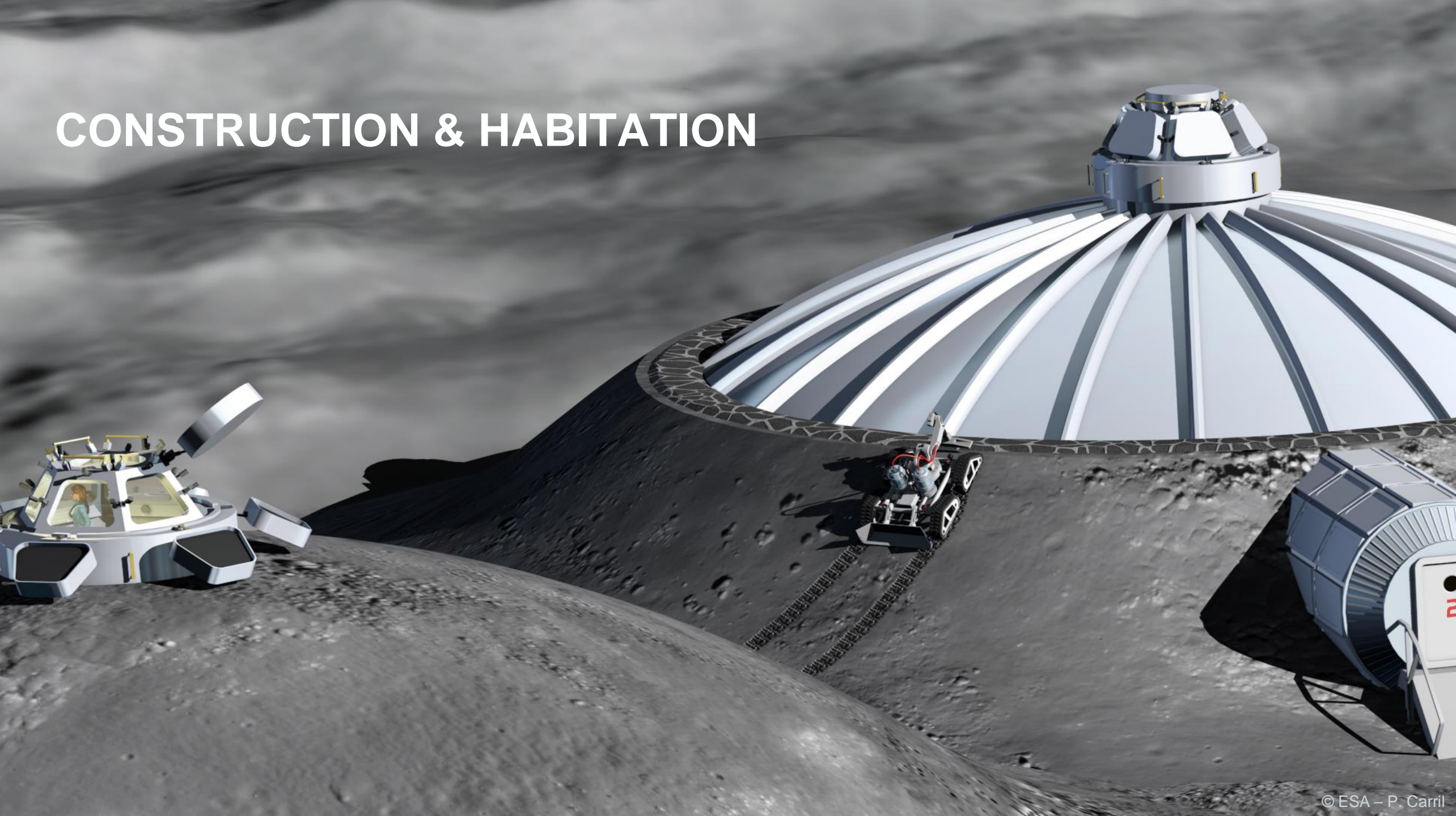
A detailed model of a lunar rover is positioned on a dark, cratered lunar surface. The rover has six wheels and a complex upper structure with various instruments. In the background, there are large, jagged rock formations under a black sky. The scene is lit from the side, creating long shadows.

# RESOURCES PROSPECTING, EXTRACTION, STORAGE & DISTRIBUTION

# TRANSPORT & MOBILITY

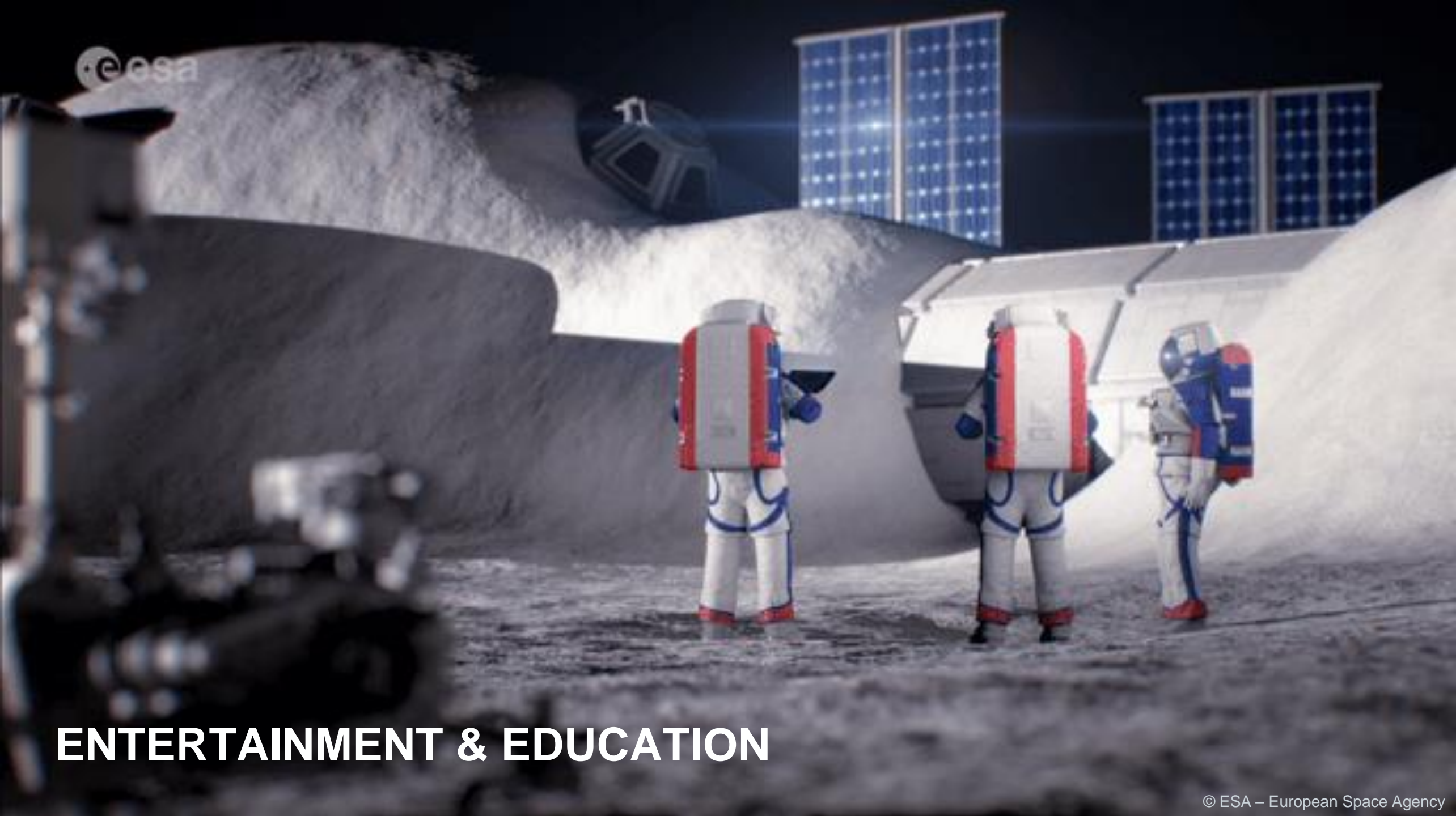


# CONSTRUCTION & HABITATION



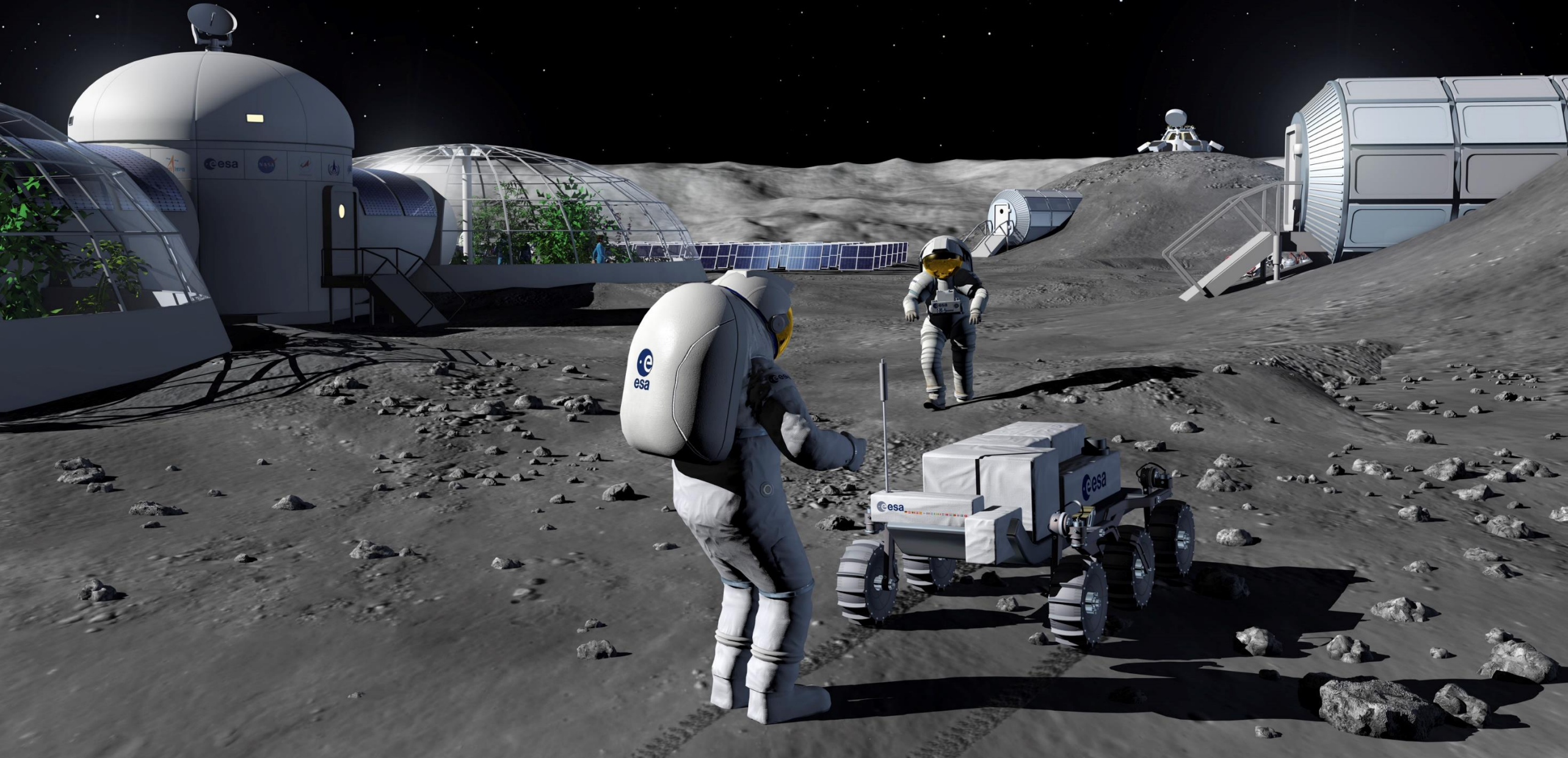
# FOOD & WASTE MANAGEMENT





**ENTERTAINMENT & EDUCATION**

# SMART INFRASTRUCTURE LEGAL & REGULATIONS, SAFETY & SECURITY



# BUSINESS OPPORTUNITY



- More than 400 missions planned in the next decade and \$137 billion investment by 2032<sup>[1]</sup>
- Moonlight aims to offer lunar communication and navigation services for anyone
- Many application areas supporting a sustainable lunar presence open up opportunities for innovative businesses



[1] Northern Sky Research, Moon Market Analysis, 2<sup>nd</sup> Edition. March 2023.



# WHAT WE OFFER



For development and assessment of selected business ideas that benefit from Moonlight's communication or navigation services we plan to offer\*:

- Zero-equity funding up to **€ 200'000 per study**
- Personal ESA consultant
- Technical & commercial guidance
- Access to our network of partners
- Credibility of the ESA brand

\* Subject to internal approvals, terms and conditions.



Identify, characterise and assess the technical feasibility, commercial viability and desirability of new service concepts that:

- would benefit from **capabilities offered by lunar communications and navigation services enabled by Moonlight** and
- address the relevant needs of **downstream customers and users in lunar environment and down on Earth.**

# WHAT WE LOOK FOR

- ✓ Attractive **market opportunities** and **customer engagement**
- ✓ **Commercially viable** service concepts
- ✓ **Technically feasible** solutions
- ✓ Added value by Moonlight's **lunar communication or navigation services**
- ✓ Motivated teams with **business and domain expertise**

WANTED: YOUR BUSINESS IDEAS



# BE A PIONEER OF THE LUNAR ECONOMY!



Visit for further information:  
[business.esa.int/moonlight](https://business.esa.int/moonlight)

