



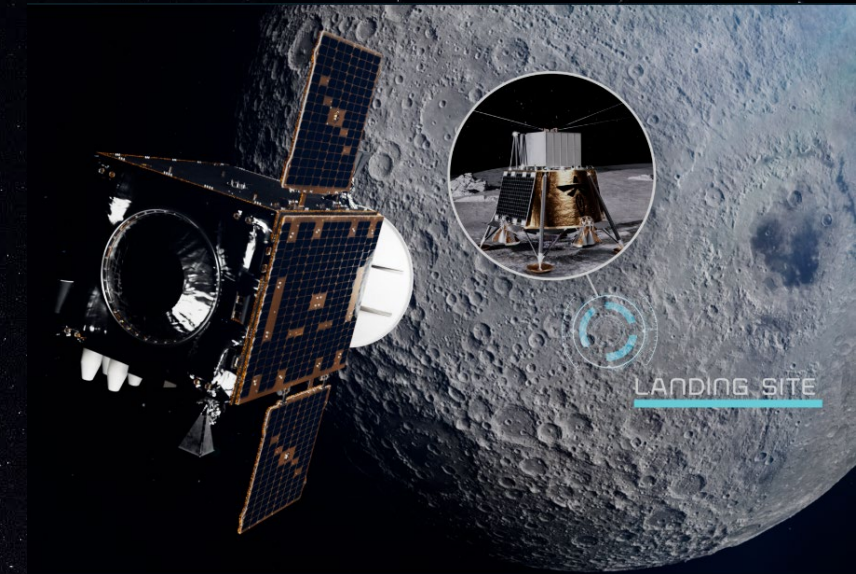
Context

Lunar Pathfinder is a:

- **commercial mission** offering lunar data relay services
- testbed for **navigation** mission technology
- source of **space weather** data

It has been in development since 2018, is currently in manufacture and scheduled for launch at the end of 2025

Lunar Pathfinder is the first node in ESA's **Moonlight** system which will offer both communications and navigation services



Lunar Pathfinder Commercial Model



UKSA vision for lunar exploration support

- Funding and strategic partner



ESA secured as anchor customer

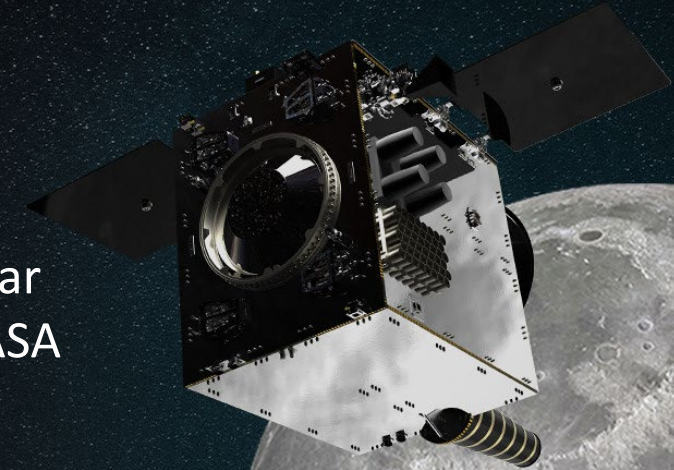
- ESA will procure communications services from Pathfinder to enable their future lunar missions

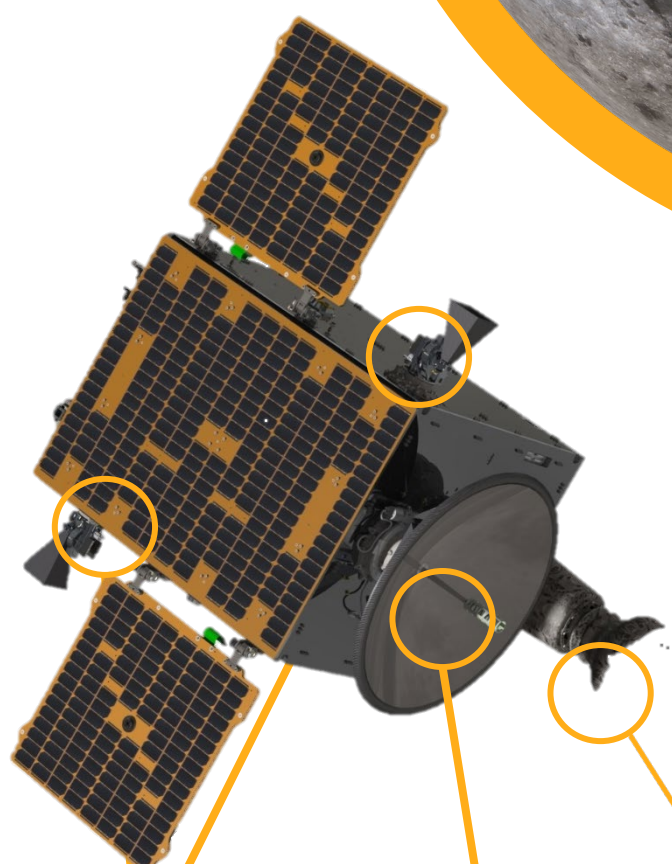


ESA and NASA Memorandum of Understanding (MoU)

- NASA will deliver Lunar Pathfinder to lunar orbit (CLPS CS-3) and ESA will provide NASA with access to lunar telecommunications

Capacity available for other missions on a **commercial** basis from SSTL





Lunar Pathfinder Capabilities

User return data-rates:

- **Earth Link**
 - 5Mbps X-band
- **Moon Link***
 - 2 x 2.7Mbps S-band



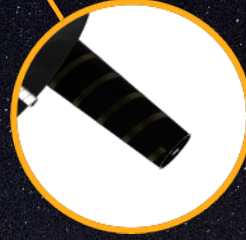
*depending on location



X-Band Earth Link



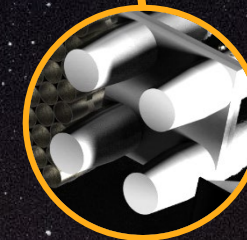
S-Band High-Gain Moon Link



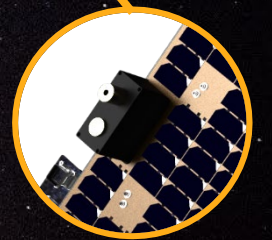
S-Band Wide-Beam Moon Link



Laser Retro Reflector



GNSS Weak Signal Detection



Radiation Monitor

Communications

Hosted Payloads

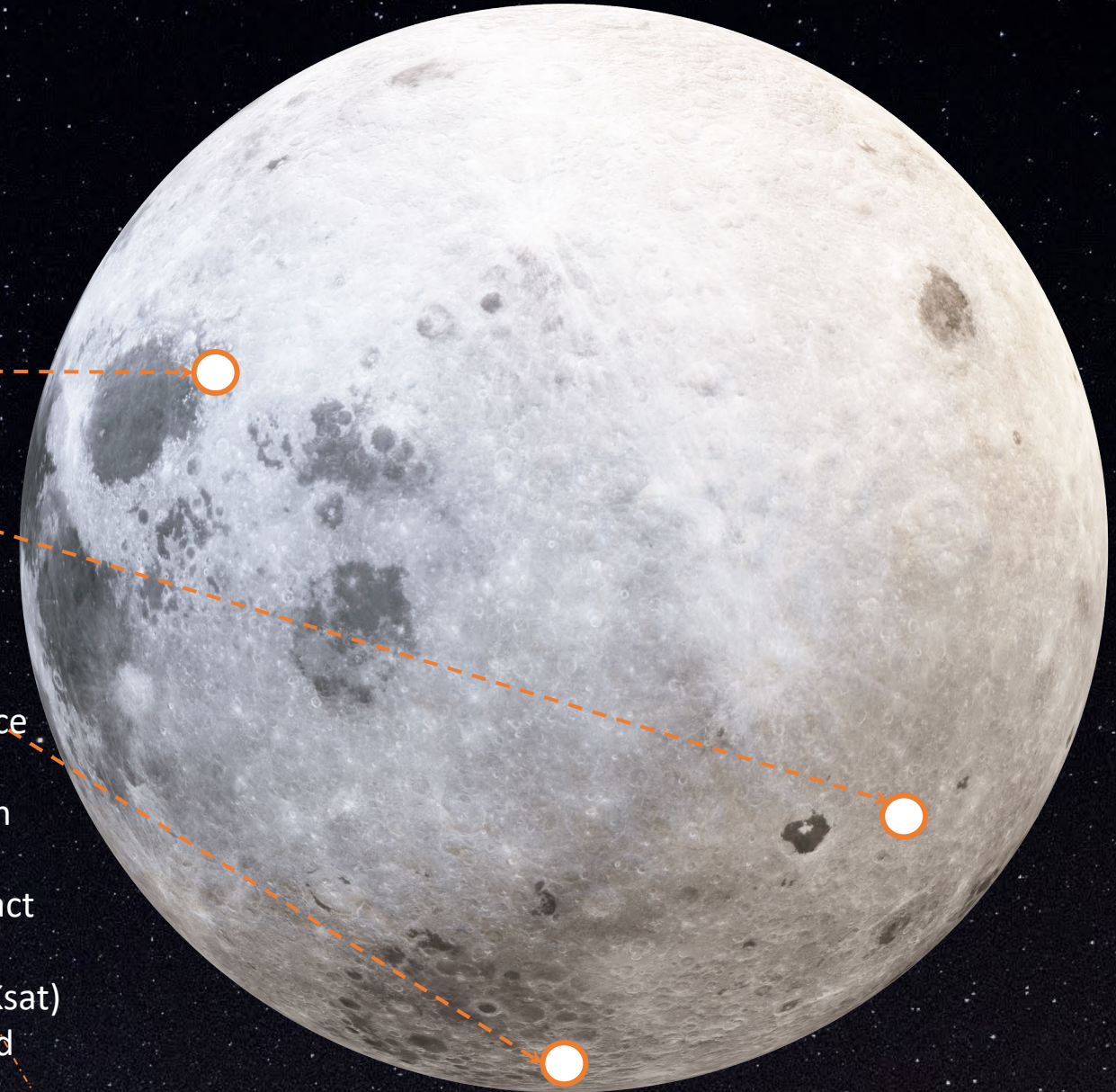


Data-relay for all lunar missions

- **ANY LOCATION** (far-side, polar, near-side, orbital)
- **ANY TYPE** (surface, static, orbiting)

Lunar Pathfinder offers different store-and-forward service levels:

- **Autonomous service**, SSTL schedules Moon and Earth contacts when there is no time criticality
- **Scheduled service**, customer defines the Moon contact sessions
 - **Earth network** is high availability (provided by Ksat)
 - **Moon contacts** dependent on location of LP and customer asset
- **Emergency service**, lowest possible latency by pre-empting other services



Lunar Pathfinder Mission Builder

SSTL has developed a “mission builder” app available on its website

User inputs:

- Location of asset (orbit or surface)
- Lat/Long
- Time window
- Transmit power (EIRP)
- G/T
- Data volume

App output:

- Assessment of LP ability to handle defined scenario

<https://www.sstl.co.uk/what-we-do/lunar-mission-services>





SSTL
LUNAR

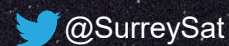
Thank you

Further info, please contact lunar@sstl.co.uk or bhooper@sstl.co.uk and pdavies@sstl.co.uk
visit our dedicated webpage

<https://www.sstl.co.uk/what-we-do/lunar-mission-services>

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