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The race to the Moon:
Belgium's challenge



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Switch2Space · Plenary session

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December 1972: the last human left the Moon.

Now, the whole world is going back.

This time to stay. And to do business.

Who is racing?

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USA

Artemis programme + commercial landers.
Crewed return planned this decade.

China

Far-side samples in 2024 (Chang'e 6).
Crewed landing targeted by 2030

India

South-pole landing in 2023 (Chandrayaan-3).

Japan

Japan made a precision landing in 2024.

Europe

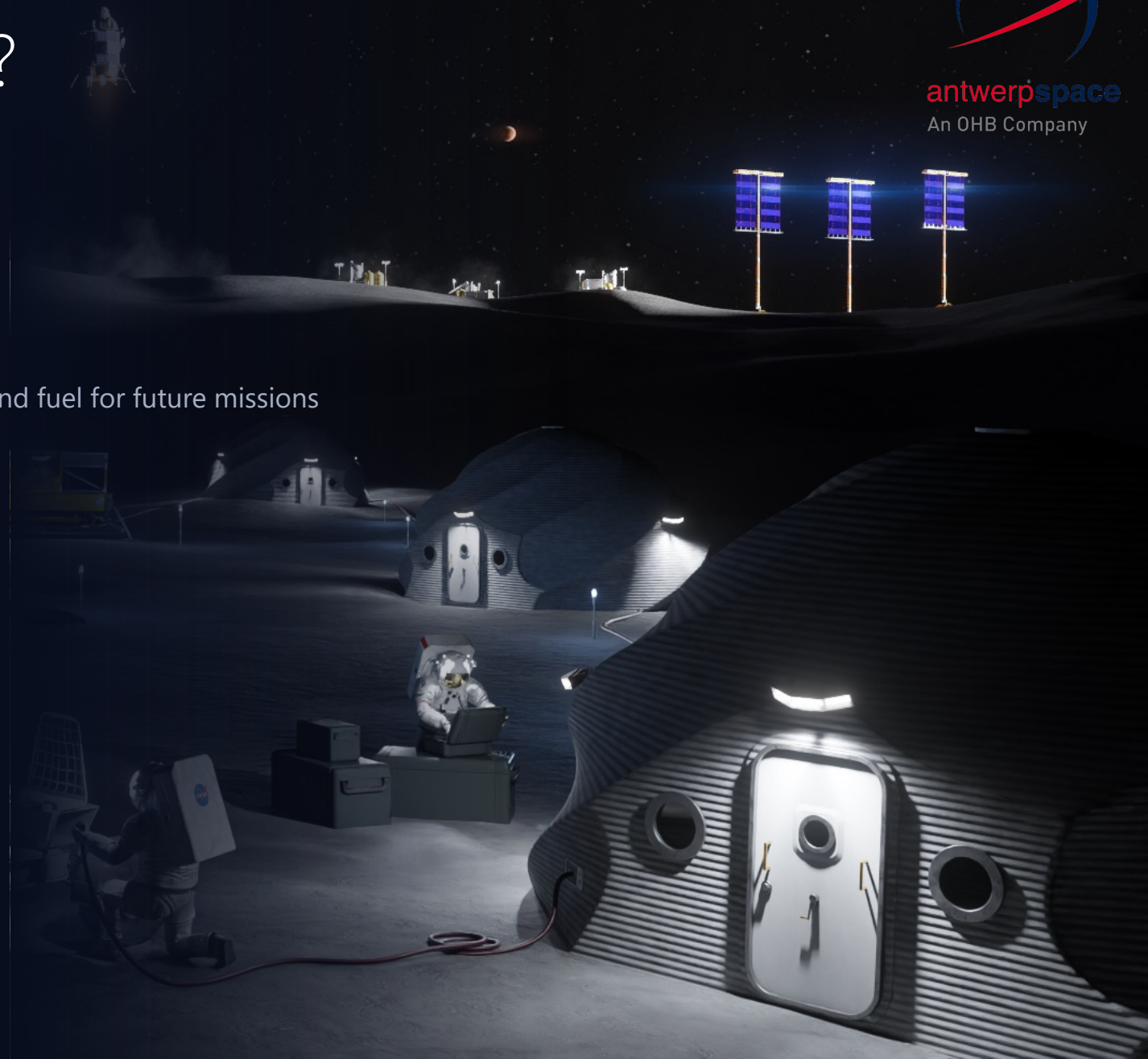
Argonaut lander
Moonlight communication & navigation
Seats on Artemis

Why the Moon? Why now?

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- **Strategic position**
  The steppingstone to Mars and deep space
- **Water ice – a vital resource**
  Can be converted into drinking water, oxygen for astronauts and fuel for future missions
- **A new economy**
  Transport, communications, power, construction
- **Rules of the game**
  Who arrives first, writes the standards
- **Science**
  4.5 billion years of history, preserved

The Moon is becoming infrastructure - and infrastructure is a market.



From earth orbit to the Moon: the bar goes up

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CHALLENGE	EARTH ORBIT	THE MOON	WHAT IT MEANS
Distance	400 km	384,000 km	**1.3 s signal delay**
Night	45 minutes	14 days	**No sun, no power**
Dust	None	Sharp, sticky regolith	**Seals & optics at risk**
Connectivity	Global ground network	No direct link at poles	**Relays & lunar navigation**

The hard math of a lunar business case

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~200×

higher cost per kg to the lunar surface (≈ $1 million/kg) compared to low Earth orbit

1 of 7

commercial lunar landing attempts fully succeeded (2019–2025)

5–10

years from first investment to first revenue

1–2

units per mission: no series production, no economies of scale

How we make the business case work

Dual-use technology for Earth & Moon · Anchor customers/contracts (ESA, NASA) · Sell services, not boxes · Share risk in consortia

The challenge for Belgian industry

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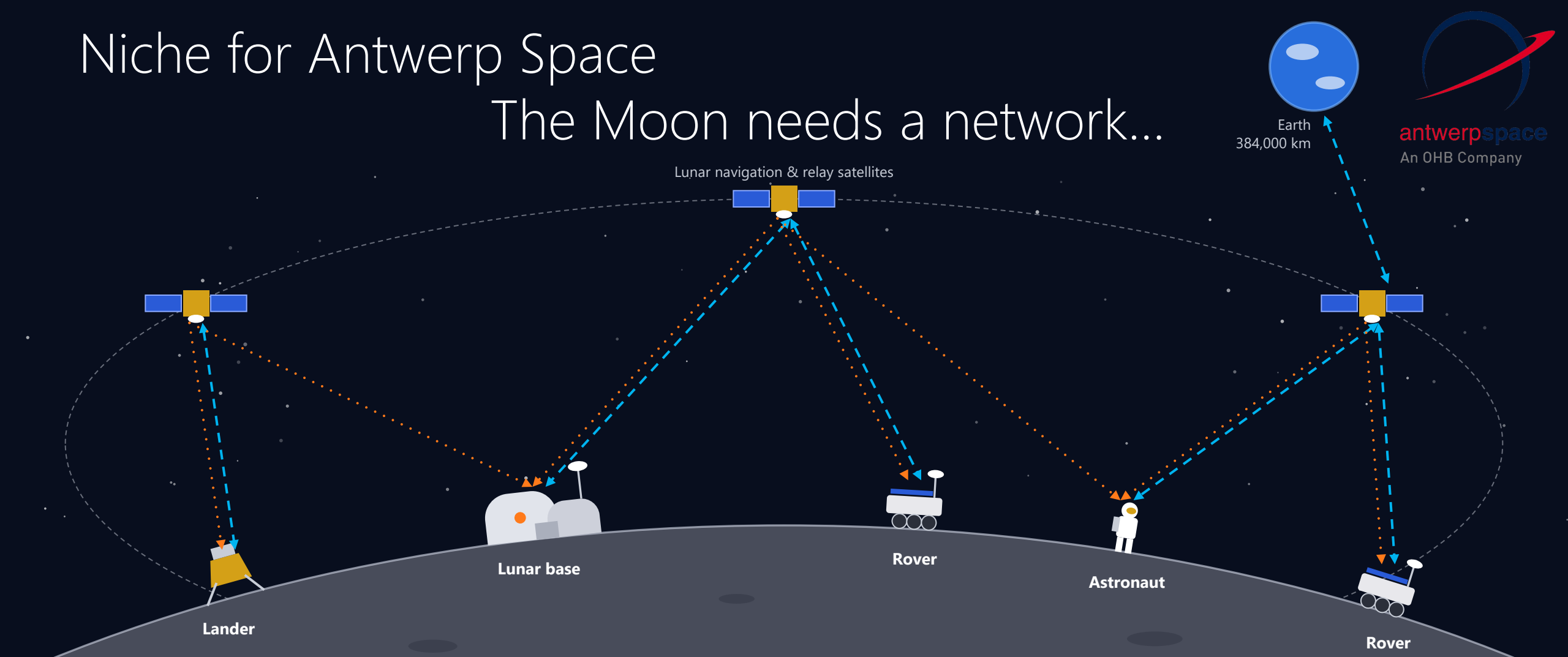
1 Scale & speed: US and Chinese budgets, start-up pace

2 From geo-return to market: customers buying services

3 Focus: be indispensable in a niche - or be invisible

Niche for Antwerp Space

The Moon needs a network...



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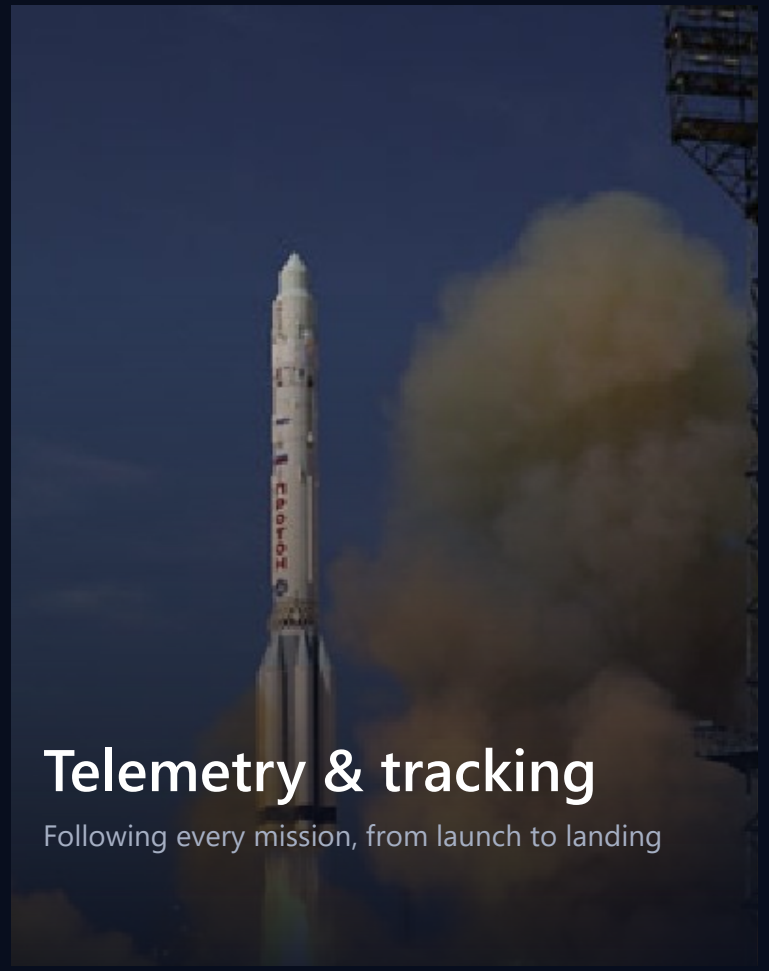
Navigation: position & time

Communication & data to Earth

One network. Every user.
Connectivity made in Belgium.

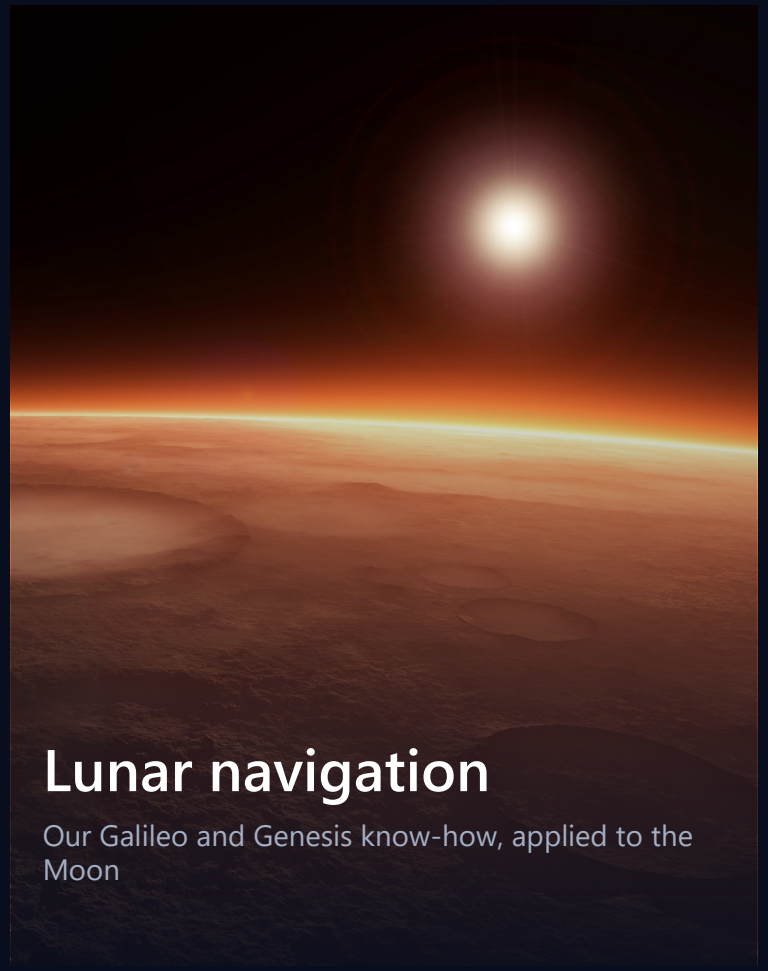
Antwerp Space: connecting the Moon to Earth

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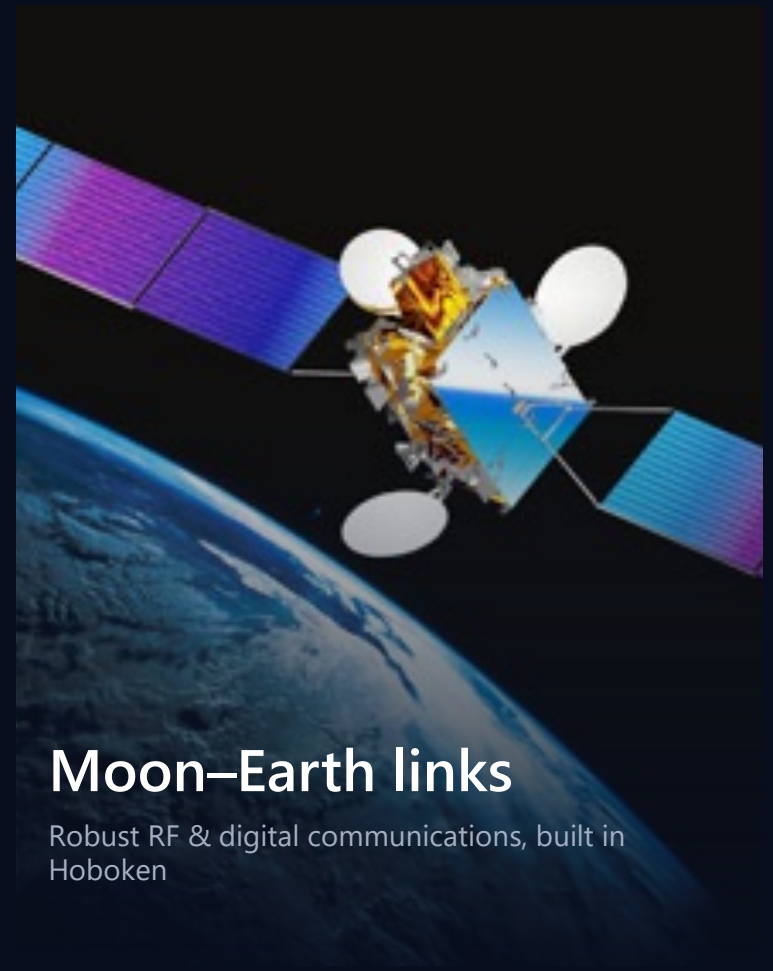
Telemetry & tracking

Following every mission, from launch to landing



Lunar navigation

Our Galileo and Genesis know-how, applied to the Moon



Moon–Earth links

Robust RF & digital communications, built in Hoboken

What we need: Team Belgium

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1 Invest boldly with BELSPO and ESA in lunar programmes

2 Inspire more space enthusiasts to join our team and fill our key vacancies

3 Join forces: industry, government, academia

Let's not be humble for once…
A small country. A big footprint.

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James Webb Telescope

KU Leuven calibrated a large part of the detector



Frank De Winne

First European commander of the ISS (2009)



Made in Belgium

Many of today's satellites are built by Belgian companies


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“There will be a lunar economy.
And Belgium will be part of it !”

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Together we make sure that the next mission to the Moon…

…will have a Belgian heartbeat.

Thank you

Koen Puimège
CEO
Antwerp Space NV