

A satellite is shown in orbit above Earth. The satellite has a central cylindrical body with a large solar panel array extending from it. Several white spherical antennas or sensors are visible on top. The Earth's surface is visible below, showing continents and city lights at night. The sun is shining brightly from the top left, creating a lens flare effect.

Impulse food for thoughts on commercial perspectives from space Exploration

NEREUS G.A.– 14 May 2019

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Thales Alenia Space and NEREUS-WG Technologies
from Space Exploration

ThalesAlenia
a Thales / Leonardo company Space



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THALES ALENIA SPACE OPEN

SPACE ECONOMY: the new era is here!

Global Challenges

- 🌐 Climate Change
- 🌐 Migration
- 🌐 Mobility
- 🌐 Communication
- 🌐 Energy
- 🌐 Shortage of Resources
- 🌐 Demographic Development
- 🌐 Conflicts and Catastrophes
- 🌐 Health

Shift of Paradigms

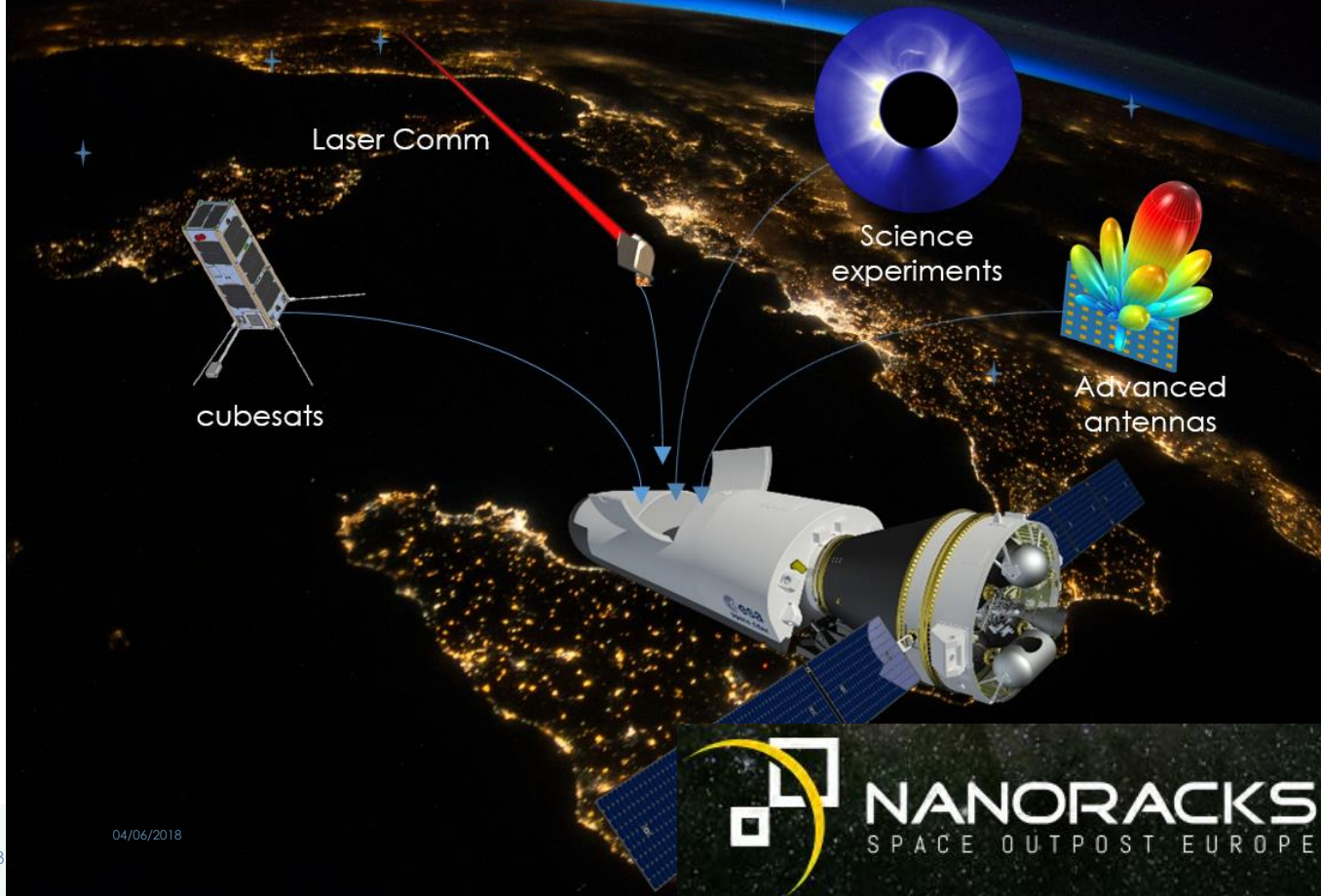
- 🌐 Change of motivations
- 🌐 Change of Actors
- 🌐 Change of contents
- 🌐 Change of Roles
- 🌐 Change of Technologies



SPACE ECONOMY

- 🌐 Commercialization
- 🌐 Participation
- 🌐 Information
- 🌐 Innovation
- 🌐 Inspiration
- 🌐 Jobs & Growth
- 🌐 Digitalization

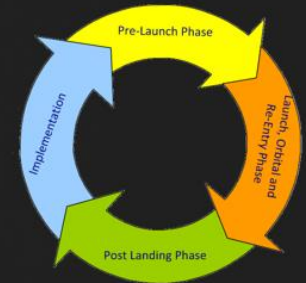
Short-term perspective/1 – Space Rider experiments & commercialization



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a Thales / Leonardo company
Space



commercial
end-to-end
service



Short-term perspective/2 – Space Tourism

MISSION PROFILE:

1. Air Launch at approximately 50,000ft
2. Rocket boost for ~60 seconds. Max Speed ~Mach 3,5
3. 3-4 minutes of high quality microgravity, apogee > 50 miles
4. Feathered re-entry
5. Glide landing on home runway



Towards mid-term perspective – In orbit Servicing

SpaceSTART* responds to the need to support new space activities in terrestrial orbits and beyond

Satellite servicing



Orbital debris removal



Mapping and mining of asteroids



*Space START (Space Servicing Transportation Assembly Retrieval Tug)

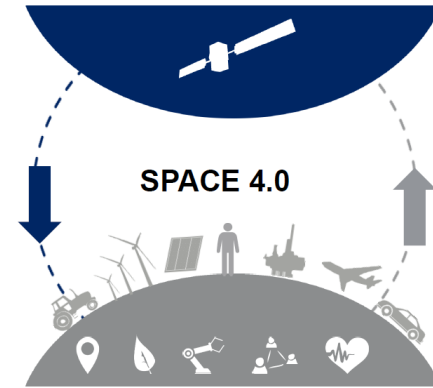
...and beyond...



Conclusion

Change of direction towards Space 4.0 requires time to establish a common language and common vision: the next steps should go in this direction, taking into account that:

“The biggest risk is not taking any risk”



Today it's time to:

**look beyond the ocean...
Think out of the box!**

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