

# Space Transformation: a changing landscape

Daniel Neuenschwander  
Director of Space Transportation  
Warsaw, 27 October 2022



# Accelerated changes in boundary conditions for the Future

SpaceX @SpaceX  
3 launches from 3 SpaceX pads in less than 37 hours  
4:37 PM · Jun 20, 2022 · Twitter Web App

**Aggressive competition worldwide**

**Booming New Space Economy**

**Increased need for European Autonomy**

**Acceleration in Human Space Exploration**

# Importance of Human Space Transportation for Europe



The worldwide landscape of space exploration has in recent years become very dynamic, with accelerating activities for Low Earth Orbit (LEO), Moon and Mars, with a level of ambition which was not seen since the first “space race” in the 1960’s.



## SPACENEWS

### Russia halts Soyuz launches from French Guiana

by Jeff Foust — February 26, 2022

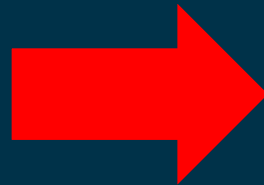


«В ответ на санкции Евросоюза в отношении наших предприятий Роскосмос приостанавливает сотрудничество с европейскими партнерами по организации космических запусков с космодрома Куру и отзывает свой персонал, включая сводный стартовый расчёт, из Французской Гвианы», — @Rogozin.



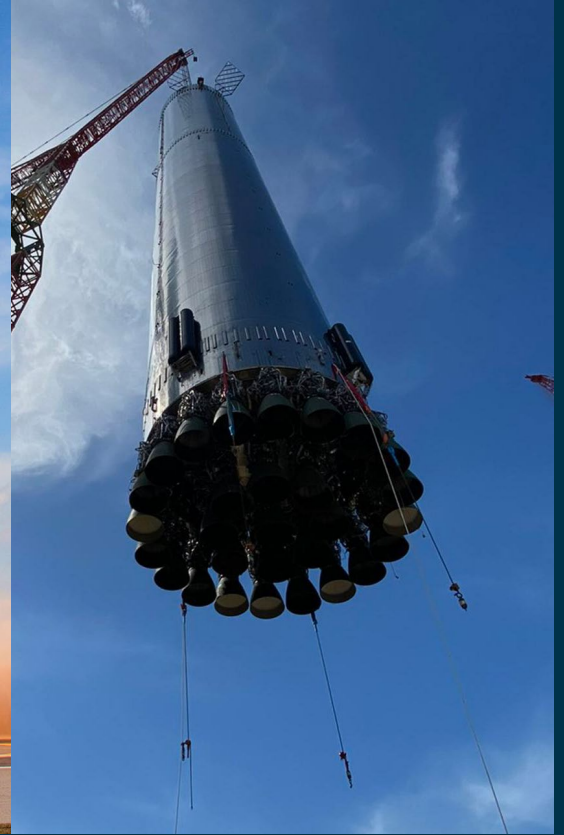
7:21 AM · Feb 26, 2022 · Twitter Web App

503 Retweets 271 Quote Tweets 1,455 Likes



1. European institutional missions and launch manifest
2. European Technology ensures autonomy

# Two Key Challenges for European ST



**Freedom of Action in Space – European  
Autonomy as a Critical Enabler**

**Pace of Innovation, Applications and  
Technology Demonstration**



## ESA AGENDA 2025

Europe's level of space ambition



## The European Green Deal

Sustainability and greening strategy



## INVEST

Services and private investments in ST



Rapid demonstrations



Commercialisation



AI & human-machine cooperation

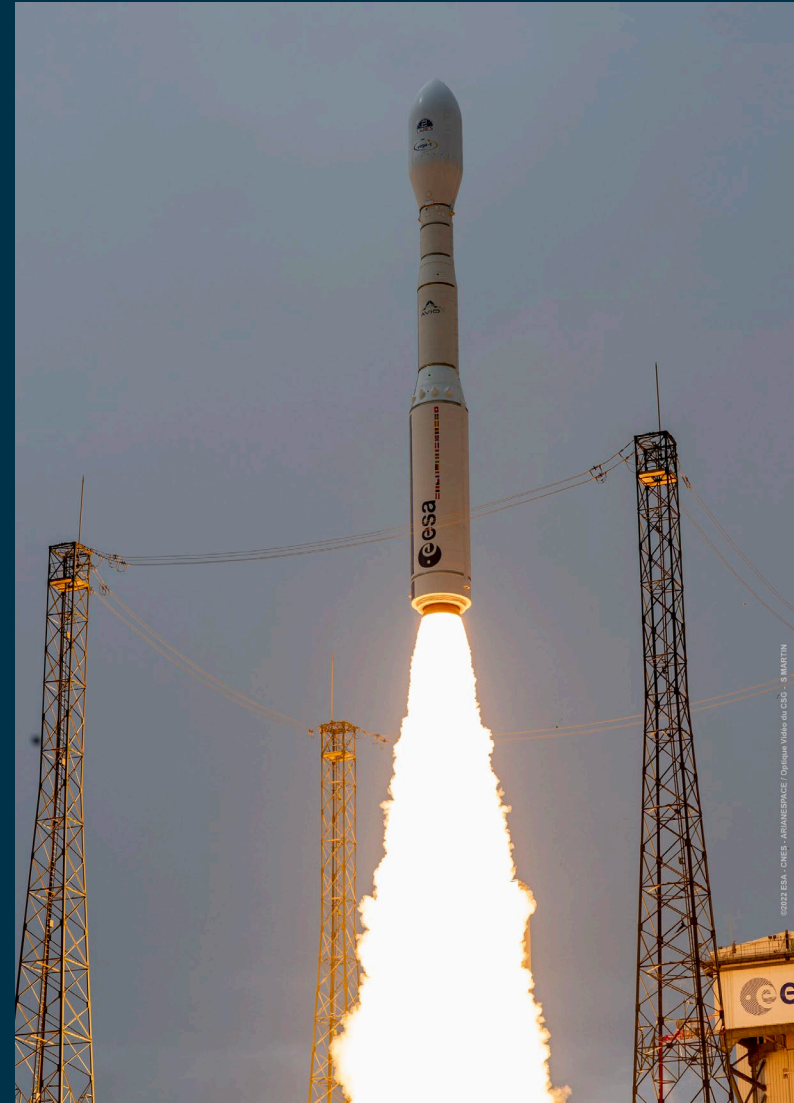
**+ Acceleration in Deciding and Implementing Programmes**



*Ariane 5 launch of  
James Webb Space Telescope (JWST)  
on 25/12/21*

&

*Vega C inaugural flight on 13/07/22*





European transportation model built on

- **Transport to/in space**
- **Return on Earth**
- Through **public & private transportation services**



Guaranteed access to space serving **Europe's freedom of action**



**Innovative, growing and competitive** European space transportation sector

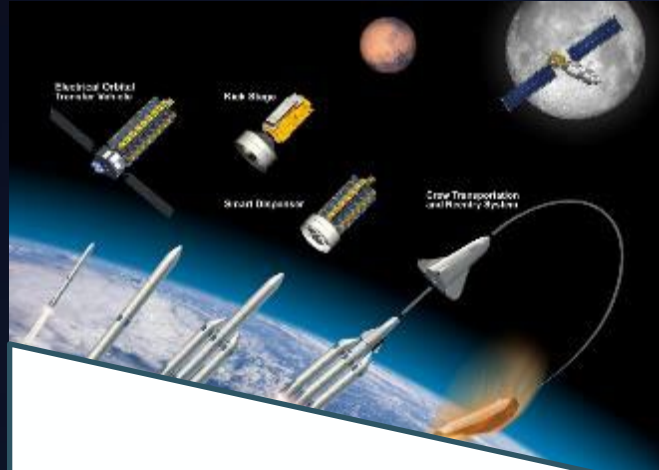


# Step 1 for transformation: STS proposal for CM22



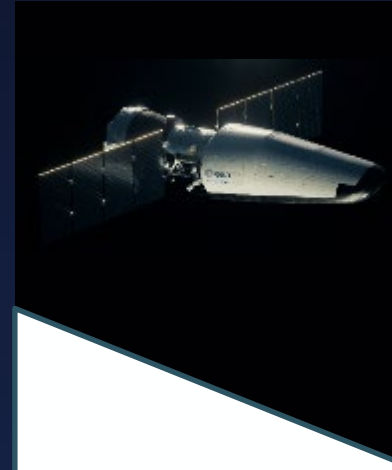
## Ariane & Vega

- **Ariane and Vega**
  - Ariane 6 product adaptations
  - Vega C adaptations & Vega E development
  - P120C+
- **Ariane 6 & P120C transition**
  - Transition over-costs
  - Process improvement
- **LEAP Ariane 6 & Vega**
  - Ariane 6 exploitation accompaniment
  - Vega C exploitation accompaniment



## Future preparation

- **Boost!**
- **FLPP**
  - Technology disruptors & space logistics
  - Themis
  - Prometheus
  - Reusable 2<sup>nd</sup> stage
- **Preparatory Activities for Human Transportation Capabilities**



## Space Rider

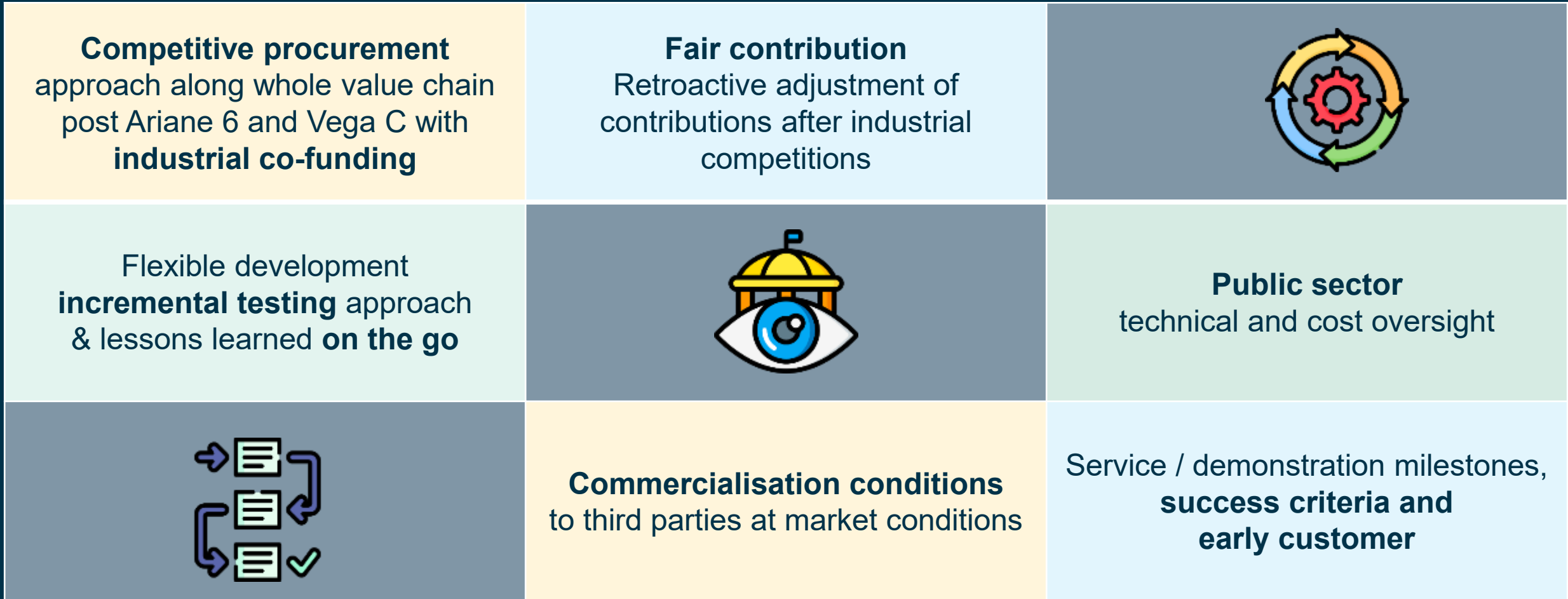
- **FM1 Completion & Re-flight**
- **Evolution**



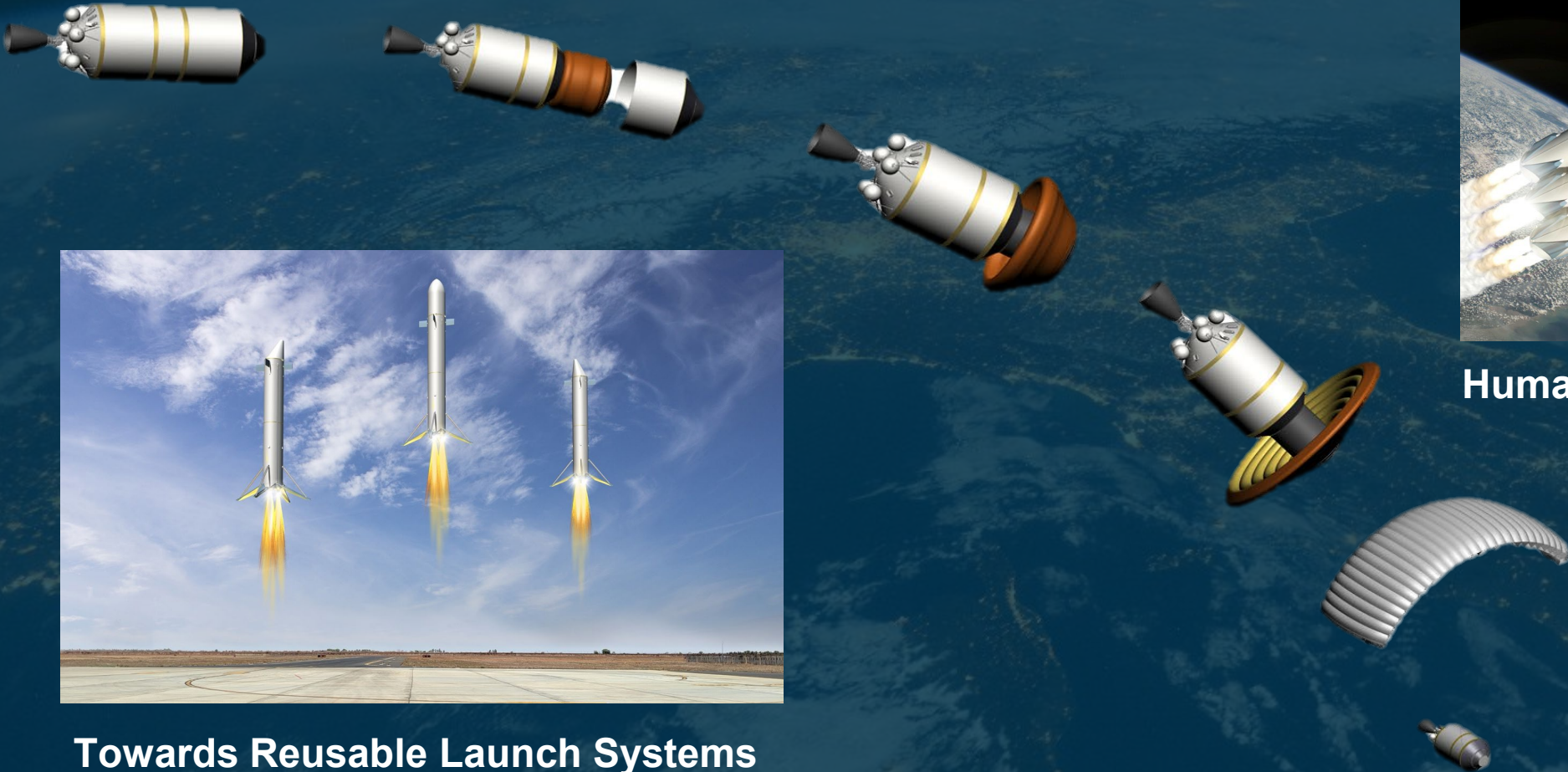
## Infrastructure

- **CSG Launch range**
  - Reference MCO
- **Flexible, Digital & Sustainable**

# Transformation of public sector in 2 steps : CM22 & CM25



# Preparing the Future of Space Transportation



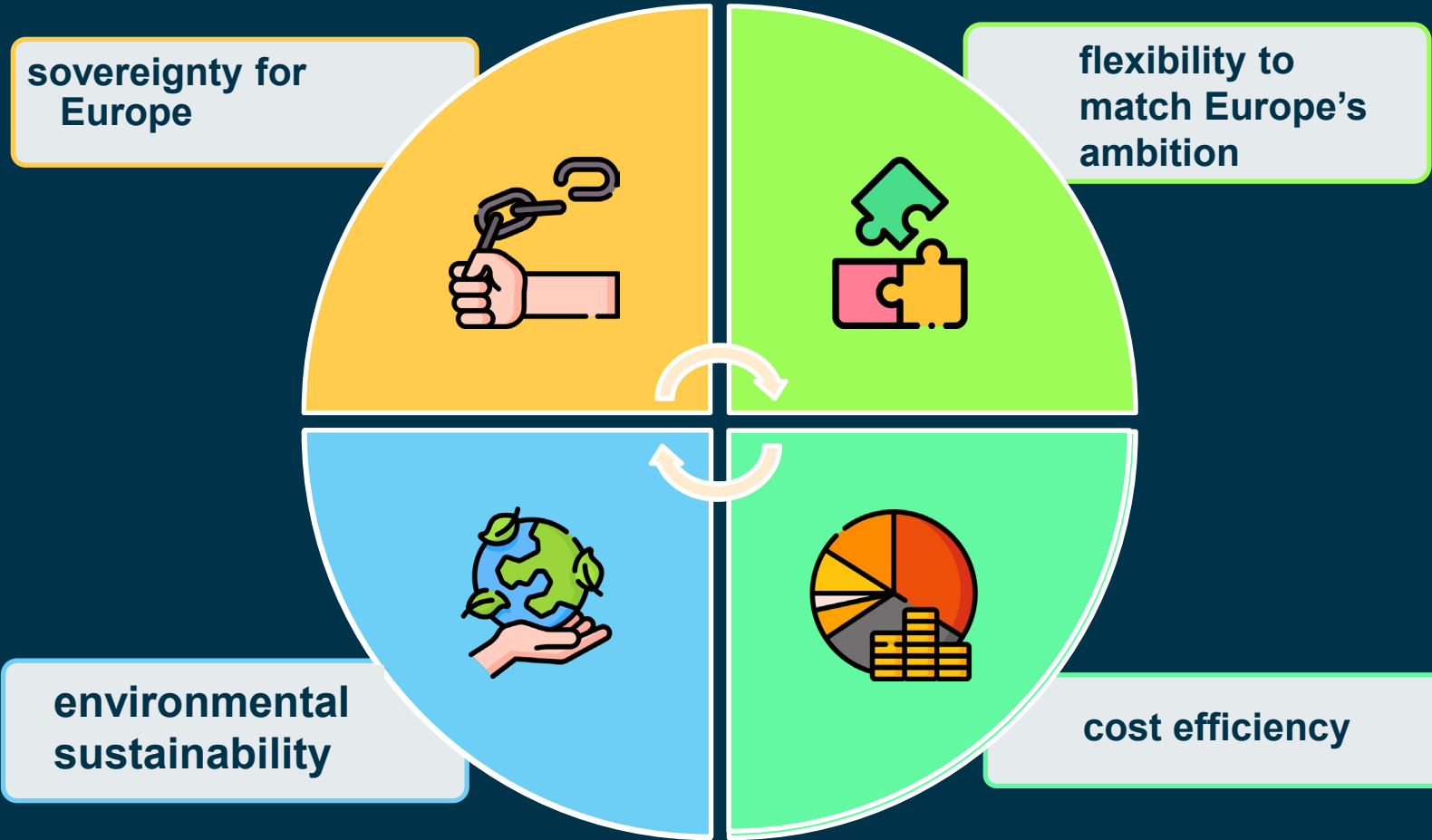
Human Space Transportation

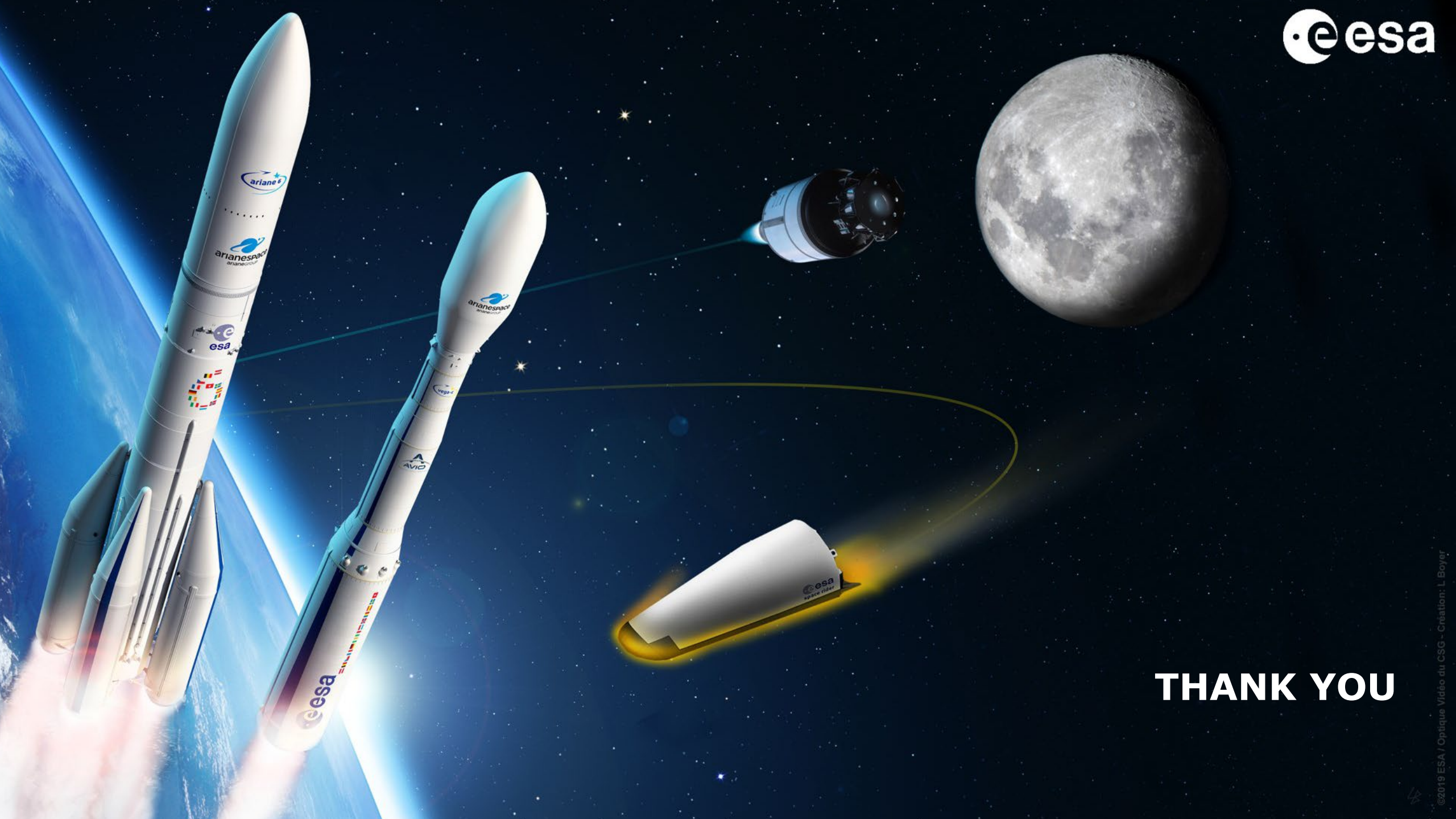


Towards Reusable Launch Systems

**Build a European Space Transportation model at a horizon 2030 and beyond serving efficiently Europe's ambition in space**

**Availability of scalable European capabilities at the 2030 horizon require decisions now!**





**THANK YOU**