UN GA – OOSA
Panel Discussion, 12th October 2017

Technological innovation of Space Activities and private actors cooperation in support to the broader Outer Space Legal regime

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AIRBUS

UN Sustainable Development Goals and AIRBUS

Mapping
Demonstrating AIRBUS ‘s allignment with the UN SDGs and defining KPIs to measures our contributions

Findings
9 out of the 17 SDGs are relevant directly to AIRBUS, we are contributing to 8

Space Programs & ICT technology
enabler for each of the 17 goals, and an essential catalyst in driving rapid transformation of nearly every aspect of our lives

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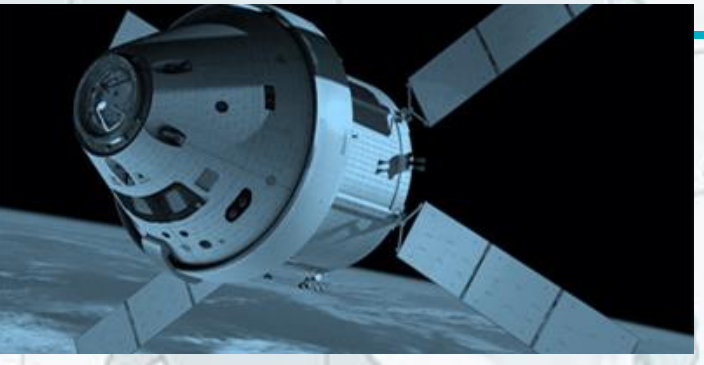
Space 2030 Pillars – Dubai Declaration

Space Economy

Space Tug as an enabler for a new in orbit economy

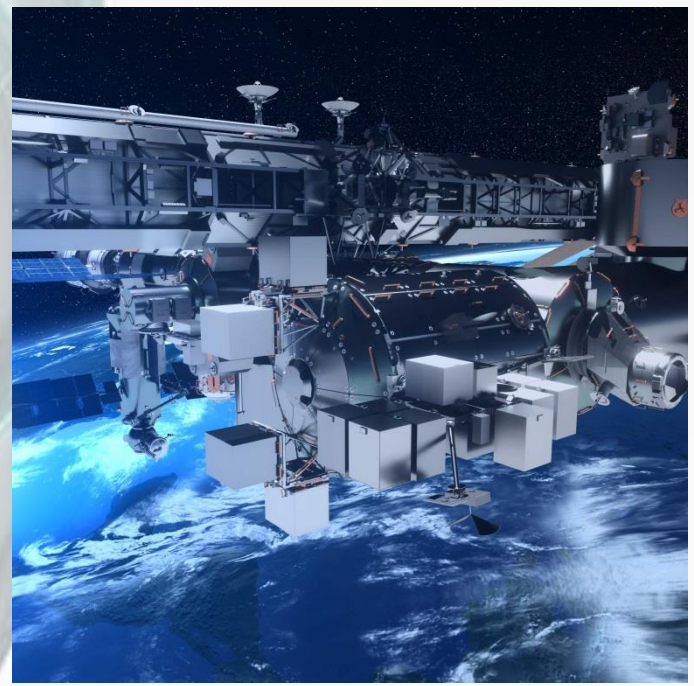
Space Society

Constellations for seamless connectivity and Global Observation



Space Accessibility

ISS outreach to new users.



Regional Capacity building

e.deorbit

→ ACTIVE DEBRIS REMOVAL

ecodesign

→ ENVIRONMENTAL IMPACTS

cleansat

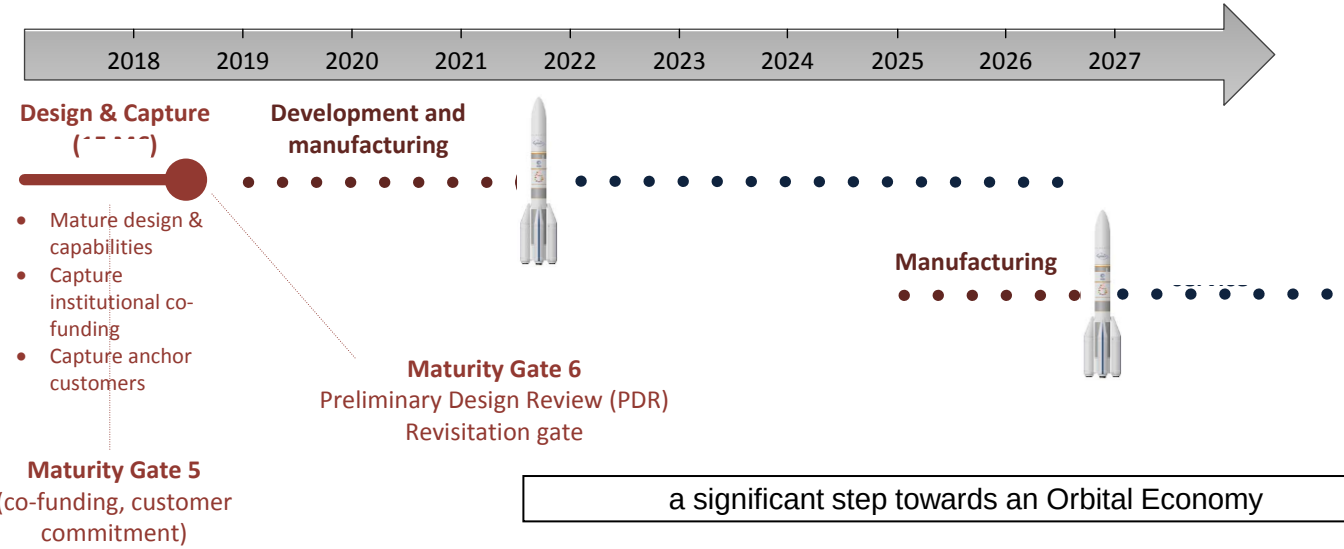
→ SPACE DEBRIS REDUCTION

e.Deorbit as first mission of space-tug vehicles performing several services

Future satellites will have to be compliant with SDM regulations, driving evolution platform and payload

Space Tug

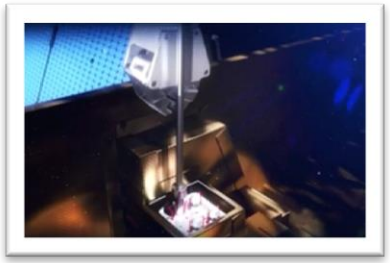
Service Vehicle based on off-the-shelf satellite platform



a significant step towards an Orbital Economy

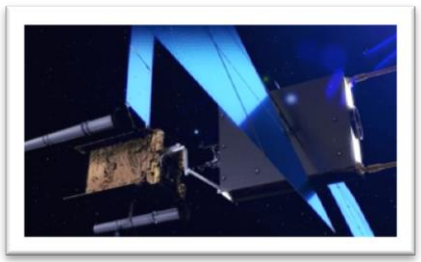
End-to-End Services

Life extension / Refueling

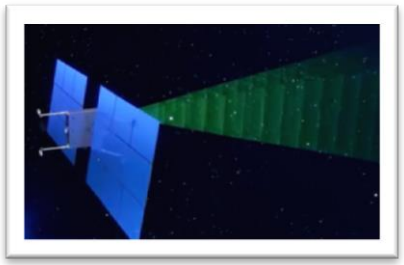


Debris removal

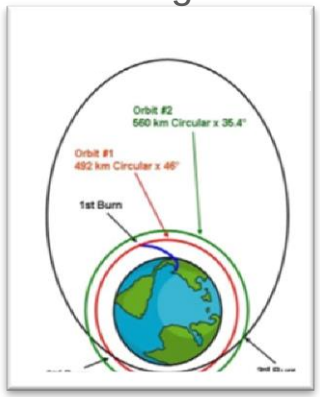
Payload exchange



Surveillance



Transportation & Orbit changes



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Bartolomeo European External Platform

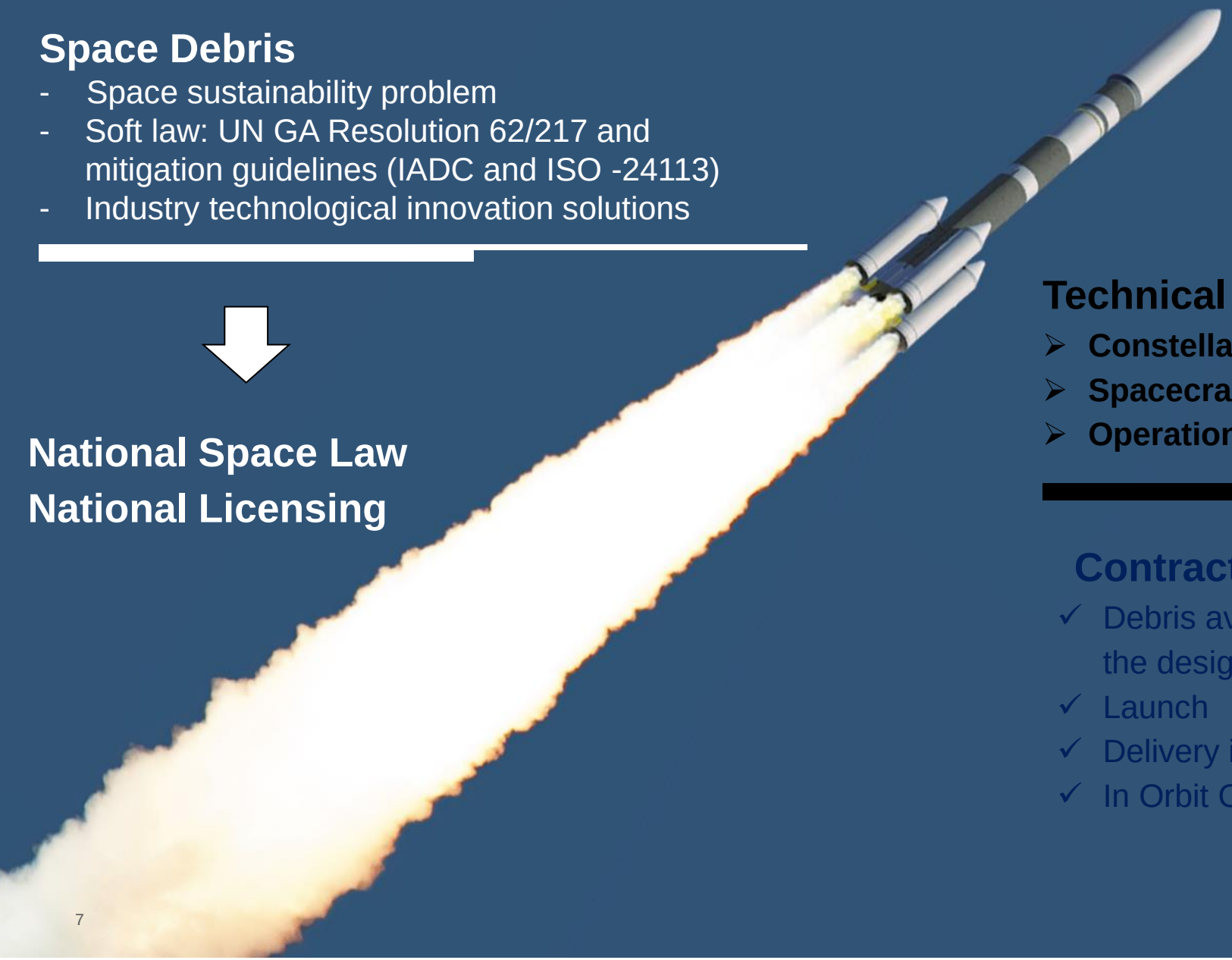
- Bartolomeo is a new Airbus space platform to operate external payloads on the European Columbus module
- A principal agreement has been reached on the partnership between ESA and Airbus enabling the operation of Bartolomeo with European resources
- Operation of Bartolomeo is supported by NASA ISS program management and by a partnership between Airbus and CASIS
- Bartolomeo will be launched in December 2018
- Bartolomeo Service will bring new users to Columbus, it is a capacity building opportunity for both private and institutional actors

Long- term sustainability of outer space activities

Space Debris

- Space sustainability problem
- Soft law: UN GA Resolution 62/217 and mitigation guidelines (IADC and ISO -24113)
- Industry technological innovation solutions

National Space Law
National Licensing



Technical rules needed

- **Constellation Design**
- **Spacecraft Design**
- **Operations**

Contractual obligations

- ✓ Debris avoidance provisions in the design
- ✓ Launch
- ✓ Delivery into Orbit
- ✓ In Orbit Operations

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Responsibility, liability and jurisdiction and control over large constellations

Space Society

International Laws (multilateral and bilateral treaties and customary international law)				
Outer Space Treaty 1967	Rescue Agreement 1968	Liability Convention 1972	Registration Convention 1976	Moon Agreement 1984

Responsibility of States: authorisation and continuing supervision

UK Outer Space Act 1986 Licence	Danish Act on Activities in Outer Space 11 May 2016	Belgium Law of 17 September 2005	French Space Operations Act 3 June 2008	Dutch Space Activities Act 2006	Swedish Act on Space Activities 963/1982	US Commercial Space Launch Act 1984	Federal Law of the Russian Federation 20 August 1993

Bird & Bird

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Liability and third party insurance requirements

National space laws may require a licensed operator to obtain third party liability insurance to ensure compensation of third parties injured by space objects under its control.

Country	Requirement
Austria	Mandatory - Euros 60m (Lower if activities in public interest)
Belgium	Voluntary (can be requested by Minister to take out insurance cover but no precedent yet)
France	Mandatory - Euros 60m for launch operations Mandatory - Euros 50 - 70m for satellite operations
Luxembourg	Mandatory under concession agreement - on basis of insurance market
The Netherlands	Mandatory - amount decided by licensing authority based on insurance market (as low as Euros 20m) – per event
Sweden	Voluntary
UK	Mandatory - Euros 60m (depending on outcome of risk assessment) per satellite

No requirement for TPL insurance in Italy or Spain.

Belgium – liability exposure of a licensee is 10% of average turnover in preceding 3 years.

Per object requirement - not suitable for constellations

The evolution of law and policy

- International and national legal frameworks need to:
  - encourage entrepreneurship, innovation, disruptive technologies
  - stimulate and protect investment

  while:
  - being accountable to the principles of the Outer Space Treaty
  - minimise State liability
  - protect the public purse

- New technology (large constellations and small/nano-sats) – catalyst for regulatory and policy change – particularly at national level

- Space – recognised as a growth industry with industry innovations being the catalyst for policy, legal and licensing changes

- Outer Space Treaties do not necessarily need to be amended – national legislation and licensing regimes are key

Constellation licences

In general:

➢Licences granted per individual satellite/per launch in EU Member States, except:

Existing practice:

- The Netherlands and France – general licences can be granted at company level
- Belgium – authorisation for series of satellites (one licence for three satellites on same launch) (Article 7, paragraph 2 No. 2 Belgian Space Law)
- UK – licences are granted for individual satellites but in practice UKSA may grant a licence for several small satellites/nano-satellites with same characteristics on same launch vehicle

No practice:

- Austria and Sweden – law does not explicitly exclude a single licence covering two or more satellites

➢ US – licences at system/constellation level are granted

Conclusions

- Private space actors support binding norms which benefits outweight risk :
  - Registration of objects
  - TPL
  - Protection of investments

- Private actors influence over regulation and space law evolution is increasing:
  - Best practice & solutions– compliance with international obligations and guidelines eg space debris mitigation / Space Tug
    - Technological developments to be reflected international standards

- Sustainable long term access to radio frequency spectrum key to Space based and Earth observation services
  - ITU RR binding Treaty reviseted every four years
  - BIU of constellation criteria at international level to be decided by ITU World Radio Conference in 2019

Questions & Anwers