Bartolomeo Q&A Webinar

PLEASE FEEL FREE TO SUBMIT ANY FURTHER QUESTIONS TO oosa@un.org

United Nations Office for Outer Space Affairs

30 January 2020

UNITED NATIONS
Office for Outer Space Affairs

Introduction to the Cooperation between UNOOSA and AIRBUS

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United Nations Office for Outer Space Affairs (UNOOSA)

Vision

Bringing the benefits of space to humankind

Mission Statement

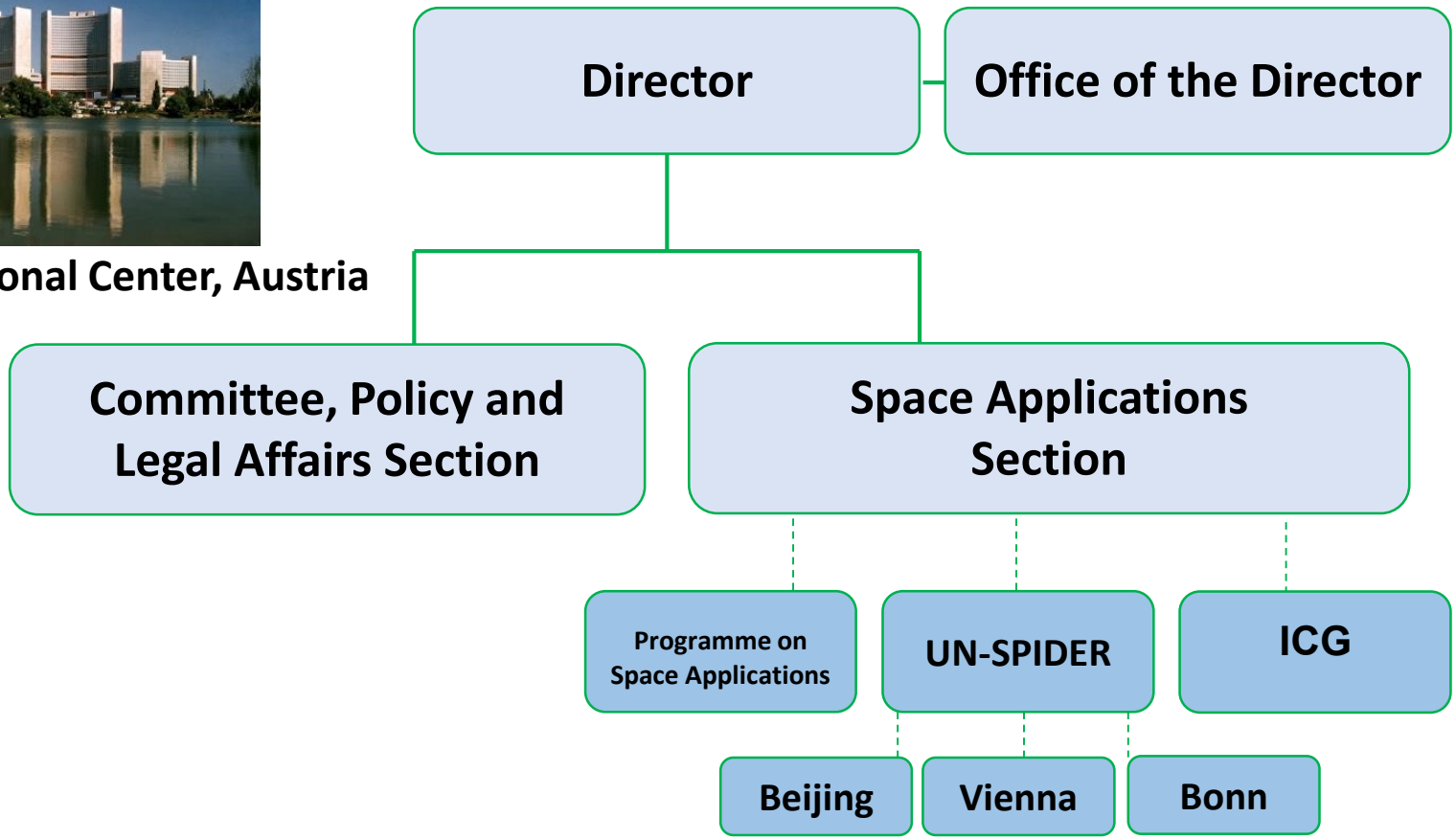
The core business of the Office is to promote

International Cooperation

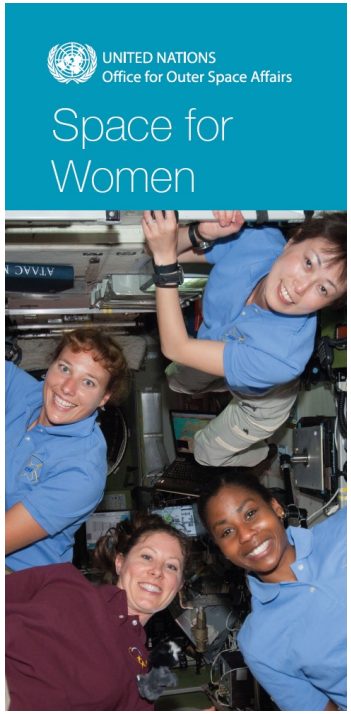
in the peaceful uses of outer space to achieve sustainable development goals

Structure

Vienna International Center, Austria



UNOOSA and the SDGs



4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

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UN-SPIDER
www.un-spider.org

ICG International Committee on Global Navigation Satellite Systems

Space is a **cross-cutting technology**, contributing in one way or another to the achievement of **all 17 SDGs**

SUSTAINABLE DEVELOPMENT GOALS

Partnerships and Access to Space for All Initiative

- To pursue its global agendas, UN needs to unlock the potential of partnerships
- UNOOSA has conducted 400+ capacity-building projects, reaching 23000+ participants
- UNOOSA is working with partners and seeking new partnerships to be able to bring the benefits of Space to humankind

Cooperation with AIRBUS

- MoU signed during UNISPACE+50, 18 June 2018

- Two main areas of cooperation:
  - Earth Observation
  - Utilization of Bartolomeo

- For Bartolomeo
  - 3U-Cubesat payload getting All in One Space Mission Service

  - Free reservation of slot on 2020 or 2021

The International Space Station: Airbus Bartolomeo Project

In June 2018, UNOOSA and Airbus agreed to jointly collaborate in the framework of Bartolomeo Project, which is being pursued under the leadership of Airbus and enables the hosting of external payloads in low-Earth orbit, on-board the ISS.

Opportunity:

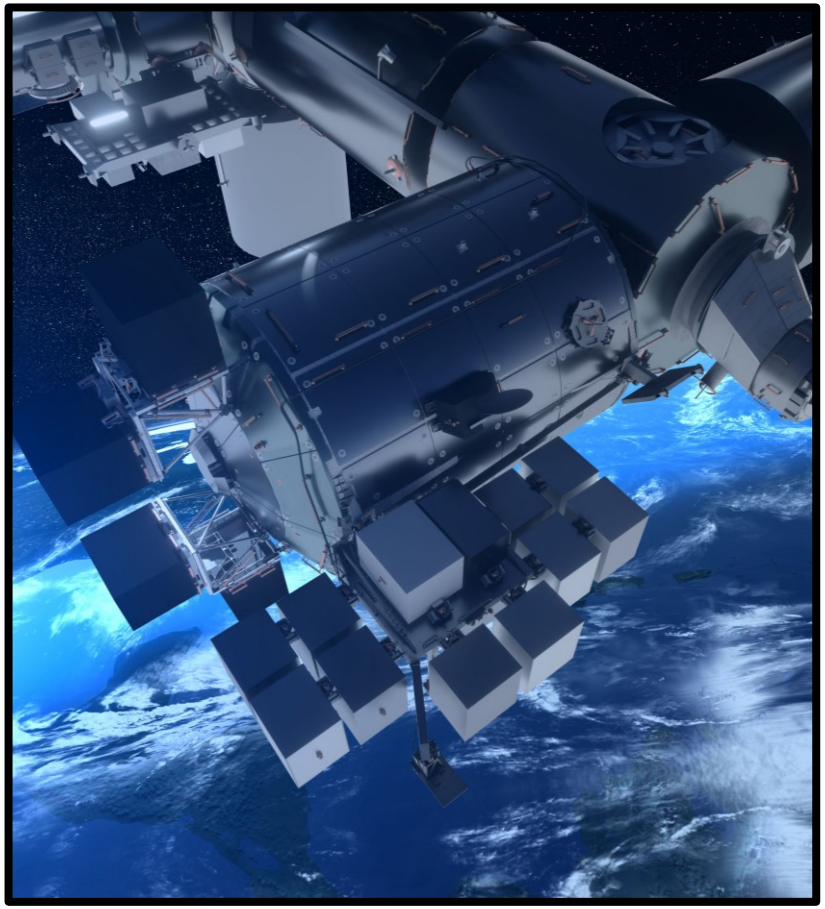
(i) A free slot (a 3U-cubesat class payload) getting full Bartolomeo All-in-One Space Mission Service;

(ii) Free reservation of a slot for a 3U-CubeSat class single-payload on our 2020 or 2021 multi-payload ArgUS platform.

(iii) Call for Interest open on December 6, 2018 and closed on January 31, 2019.

(iv) 63 responses received

Activities are performed with the generous support of Airbus



Cooperation with AIRBUS

- Open a Call for Interest
  - Call for interest opened on 6 Dec 2018
  - Closed on 31 January

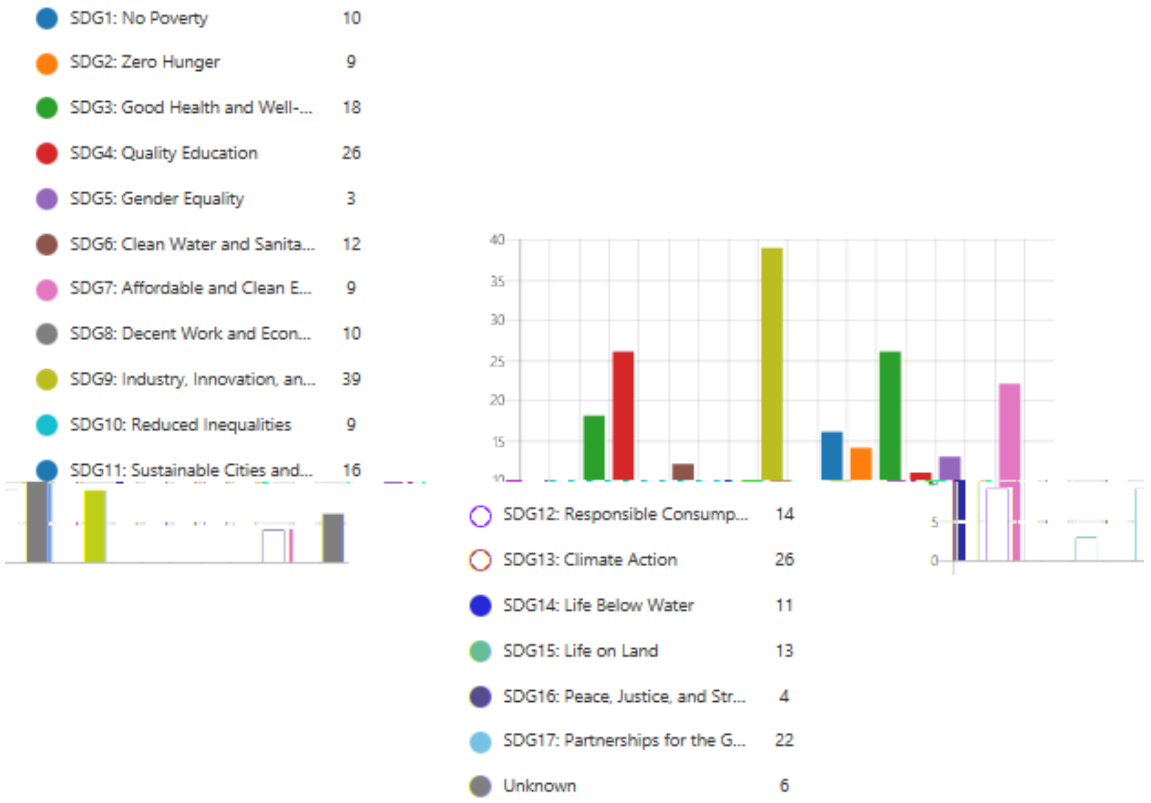
- Technical Briefing
  - 27 February

- Opportunity announced during the International Astronautical Congress (Oct 2019)

- First Webinar 25 November (about one month after announcement of opportunity)

Call for Interest - Summary

- 63 Expressions of Interest
- Countries most represented:
  - Mexico 6
  - Italy 5
  - USA 4
  - South Africa 3
  - Peru 3
  - Nigeria 3
  - Australia 3.



SDG 9 is the one repeated most in the expressions of interest

Technical Briefing - Summary

- Half have not submitted an Expression of interest

7. Have you submitted an answer to the Call for Interest for Bartolomeo?

More Details

Yes	51
No	46

8. Modality of attendance

More Details

I will be traveling to Vienna	28
I will attend online	69

We expect that the AO will be even more successful!

To increase the capacity-building potential of the initiative partnerships are encouraged

AO announcement and Webinars- Summary

- AO announcement took place during IAC (end October 2019)
  - Applications are open until **30 April 2020**
- First webinar took place on 25 November
  - More than 30 participants
  - Presentations and FAQ is on the website
    https://www.unoosa.org/oosa/en/ourwork/psa/hsti/orbitalmission/bartolomeo/index.html

Questions and Answers of this webinar will also be posted online
Additional questions can be sent at anytime to oosa[at]un.org

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Overview of the Opportunity

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What kind of experiments can be run?

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Use Case	Description
Remote Sensing	• The unobscured view of Earth from *Bartolomeo* in approximately 400 km orbit altitude enables high quality imaging with cost-efficient instrumentation • Line-of-sight pointing and stabilization systems may be made available as optional service, if necessary
Astrophysics / Heliophysics	• *Bartolomeo* offers among the best view towards the Zenith direction • Line-of-sight pointing and stabilization systems may be made available as optional service, if necessary
Atmospheric Research	• All forward-facing payloads have unobstructed view to the space / atmosphere boundary • Usually, Limb-oriented instruments do not require specific pointing or stabilization and can be hosted on *Bartolomeo* very easily • Broadband data downlink capabilities of *Bartolomeo* allows for a high data production rate
Space Weather	• The unobstructed Zenith-oriented view allows cost-efficient space observation, e. g. for solar activity monitoring
On-orbit Assembly for Exploration	• *Bartolomeo* payloads have only some restrictions regarding their volume in space • *Bartolomeo* can provide an opportunity to assemble space system components on-orbit and deploy them with appropriate systems • Short-term realization of a long-term vision to provide larger space systems unrestricted by the launcher payload fairing for exploration

What kind of experiments can be run?

Robotics Testing	• *Bartolomeo* payloads have only some restrictions regarding their volume in space • *Bartolomeo* can provide an opportunity to perform robotic operations in a protected testing environment
In-orbit Testing	• With power, data and viewing available *Bartolomeo* can serve as general in-orbit demonstration test bed • If compliant with safety regulations any technology can be tested on ISS as long as it is of civilian purpose
Propulsion Testing	• With power available up 800 W per payload *Bartolomeo* can serve as testbed for new electric space propulsion systems
Material Science	• With unobstructed Zenith-oriented view *Bartolomeo* gives the opportunity to expose material samples to space and solar radiation • With unobstructed Ram-facing view the effects of atomic oxygen can be studied on samples
Spacecraft Deployment	• One of the *Bartolomeo* payload sites can be converted to a small satellite deployment system • If deployed directly from *Bartolomeo* satellites can have more mass than deployable by existing systems
In-space Manufacturing	• Via *Bartolomeo* and its large / extendable payload envelopes on orbit in-space manufacturing can be performed to produce large space structure with 3D printing or other appropriate methods

3U-Cubesat payload getting All in One Space Mission Service

THANK YOU

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