Digital Transformation and Green Economy

Webinar - 24th Nov 2021

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Welcome to the webinar

Before we start…

Due to the number of attendees, please keep your microphones muted at all times and switch off the webcam function

You can use the conversation function anytime to submit your questions. They will be addressed during the Q&A at the end of the webinar

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Davide Coppola
Partner-led/Thematic Initiatives Section
European Space Agency

Agenda

- Introduction to the thematic call

- Thematic call themes:
  1. Artificial Intelligence and Machine Learning (AI/ML) and Cloud and Virtualisation
  2. Digital Twins
  3. Sustainable Mobility
  4. Green Value

- How to apply

- Q&A

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We Are ESA

esa

EUROPE'S GATEWAY TO SPACE

WHAT	22 Member States, 5000 employees
WHY	Exploration and use of space for exclusively peaceful purposes
WHERE	HQ in Paris, 7 sites across Europe and a spaceport in French Guiana
HOW MUCH	€6.49 billion = €12 per European per year

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PURPOSE OF THE EUROPEAN SPACE AGENCY

To provide and promote, for exclusively peaceful purposes, cooperation among European states in space research and technology and their space applications."

Article 2 of
ESA Convention

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# ESA AGENDA 2025 & TIA VISION


ESA Strategy

DG's Agenda 2025 target to boosting commercialization for a green and digital Europe fostering development of digital technologies and applications the EU Green Deal targets, including:

- **sustainable and smart mobility** (connected and automated, multimodal transport)
- a fully integrated, interconnected and **digitalized European energy market**
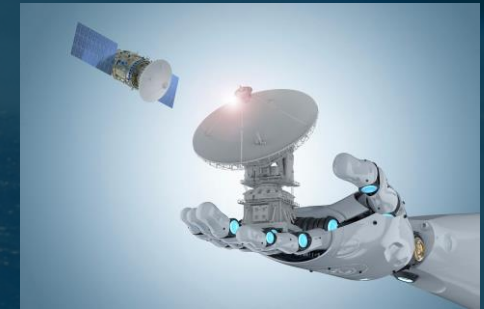
TIA Vision – Towards *Digital & Green* Space

"ARTES to foster the Digital & Green transformation through satellite communications for the next decade, by fostering new digital technology, products, services & applications which help all economic sectors in Europe (including Space) meet the Environmental targets of the EU and ESA Member States"

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Digital transformation & Green Economy
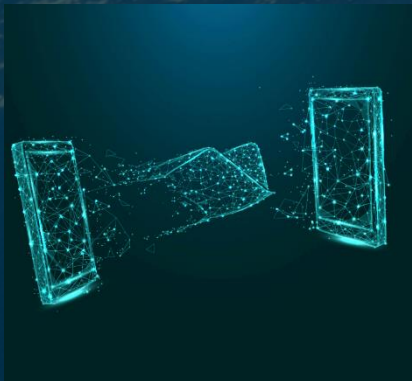
The Thematic Call aims at boosting commercialisation for a Digital and Green Europe by fostering the development of digital technologies, products and applications targeted by the European Green Deal.

The call offers an unique opportunity for companies to develop:

- new **services**
- **technologies**
- **products** and end-to-end systems

addressing **four** themes:

1. Artificial Intelligence and Machine Learning (AI/ML) and Cloud and Virtualisation
2. Digital Twins
3. Sustainable Mobility
4. Green Value

SUSTAINABLE MOBILITY
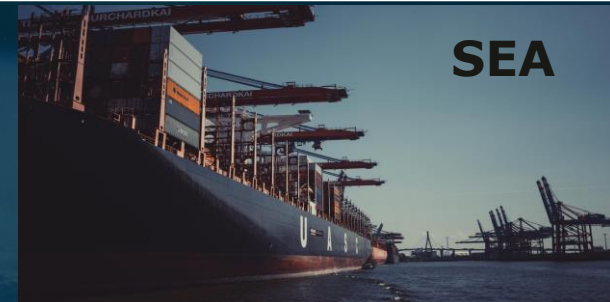## *Definition and Impact*
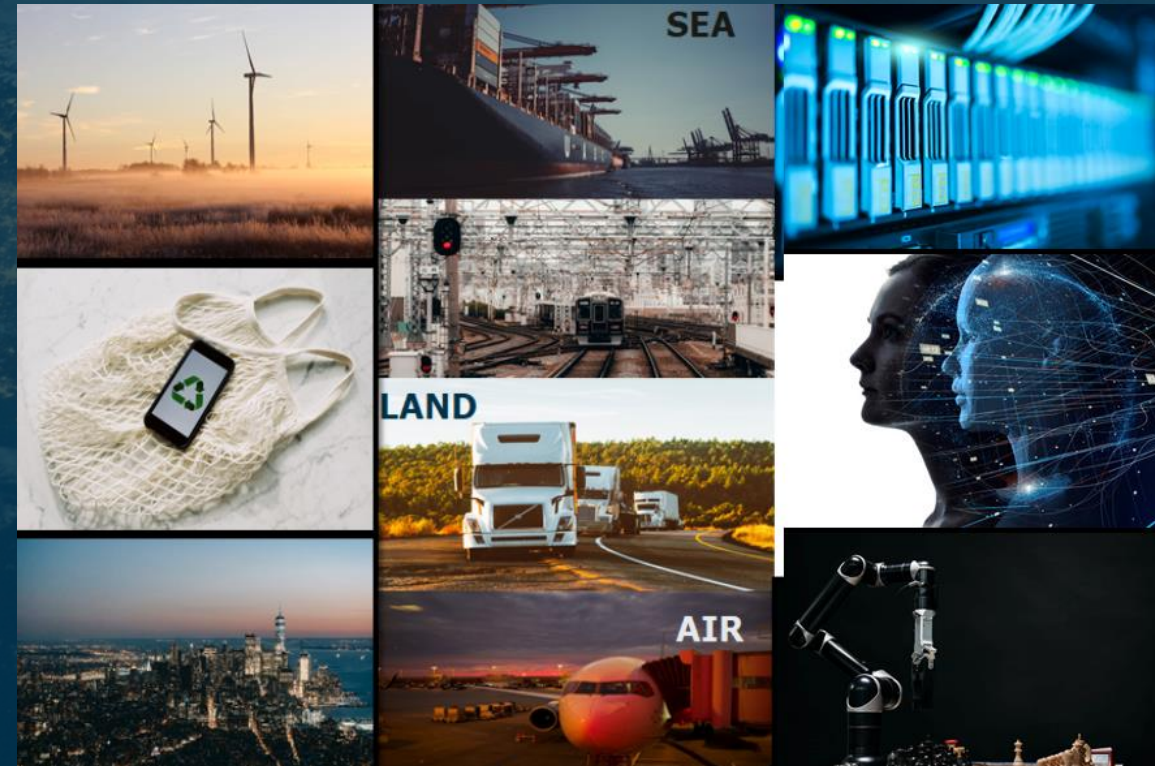
Sustainable Mobility

It refers to technologies and services for the mobility and transport of passengers and goods that are sustainable in the sense of **social and environmental** impact. It includes the intelligent use of energy, digital technology and transport infrastructure for Sea, Air and Land.

Impact

Satcom is critical for **ubiquitous** connectivity across all transport domains be it for mission critical or added-value applications. Such applications require advances in Satcom capabilities across the space, ground and user segments and as such will fuel an expanding Satcom market. **Mobility** is a critical component of national and international trade, climate change mitigation, quality of life for citizens, and the global economy, and as such new mobility services will have broad influence.

SEA

RAIL

LAND

AIR

GREEN VALUE
Definition and Impact

Green Value

It refers to economic development that attempts to satisfy the needs of humans in a manner that sustains natural resources and the environment for future generations.

Impact

As humanity faces an imminent climate crisis it is imperative that new services are developed addressing the needs of not just their customers but also the environment. Satcom is invaluable in providing connectivity to various green use-cases for the transmission and retrieval of data. Satcom itself should see improved efficiency in deployment across the full value chain (manufacturing, supply chain, assembly, launch, operations and service provision) in order to be sustainable throughout the future.

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Domenico Mignolo
Head of the Ground and User Segment Technologies and Products Section
European Space Agency

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AI/ML, CLOUD & VIRTUALISATION
Definition and Impact

Artificial Intelligence and Machine Learning

The use and development of computer systems that are able to learn and adapt without following explicit instructions, by using algorithms and statistical models to analyse and draw inferences from patterns in data.

Cloud & Virtualisation

The delivery of computing services (servers, storage, databases, networking, software, analytics, and intelligence...) over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale.

Impact

AI/ML is revolutionizing our society. AI-driven technology brings unique opportunities to Satcom; processes acceleration, resources optimisation, risk reduction and faster decision making in Operations.

Impact

Cloud & Virtualisation technology is significantly changing business models in Satcom; allowing HW commoditization, closer interaction with end users, higher data processing and creating the foundation for sovereign infrastructures.

Digital Twins

A virtual representation that serves as the real-time digital counterpart of a physical object, system or process.

Impact

Digital twins are expected to impact every industry by enabling real-time comprehensive oversight over physical objects, products, systems and processes, be those satellites and constellations, vehicles, manufacturing processes and supply chains, built infrastructure or entire cities. This enabling drastic advances in efficiency, predictive, design and simulation capabilities.

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Innovation elements

Technology Innovation
both in satellite connectivity and integration with terrestrial networks (5G, Internet of Things (IoT)) and in exploitation of non-space technologies as Artificial Intelligence (AI) and Digital Twins

New services, technologies, products and end-to-end systems suited to address the use cases and the unsatisfied and diverse needs of the relevant vertical markets

- Key enabling technologies and products in the domains of satellite connectivity (5G Broadband, massive IoT)
- Integration with digital non-space technologies, including artificial intelligence (AI), Cloud, Virtualization, and Digital Twins
- Integration with navigation and space data resources to deliver innovative solutions

Business Innovation in key markets
(Transport - sustainable mobility, Energy transition - Circular economy), through enabling new business models on the expanded digitised value chain, engaging space and non-space ecosystems towards their green transition

- Enable creation of innovative business models and value chains with involvement of space and non-space user communities and industrial actors engaged in the green transformation
- Enable space providers delivering green solutions to new communities and markets
- Generate novel sustainable service platforms and applications addressing vertical markets in support of their green transition

PROCUREMENT APPROACH -
Digital Transformation & Green Economy

Increase awareness of *Digital & Green* opportunities
To stimulate emergence of space-enabled solutions across space and non-space domains

Current GPLs and SPLs funding/implementing tools will be used

GPLs   **SPLs**

No modification to existing ARTES mechanisms*

* Eligibility criteria in line with ARTES implementing rules

SMEs, New Space and Spin-in Industry although open to all Industry
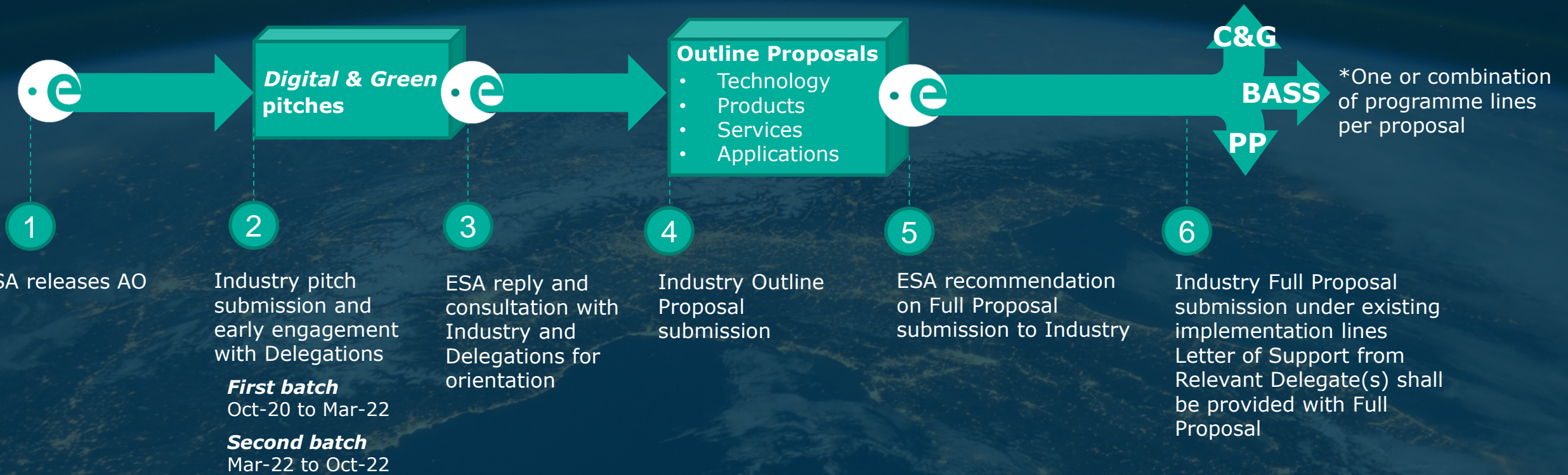
Orientation to Industry prior to Outline Proposal

Simplified SINGLE point of access to ESA ARTES frameworks via pitch

PROCUREMENT APPROACH
Digital Transformation & Green Economy

Digital & Green pitches

Outline Proposals
- Technology
- Products
- Services
- Applications

C&G

BASS

PP

*One or combination of programme lines per proposal

1 ESA releases AO

2 Industry pitch submission and early engagement with Delegations

First batch Oct-20 to Mar-22

Second batch Mar-22 to Oct-22

3 ESA reply and consultation with Industry and Delegations for orientation

4 Industry Outline Proposal submission

5 ESA recommendation on Full Proposal submission to Industry

6 Industry Full Proposal submission under existing implementation lines Letter of Support from Relevant Delegate(s) shall be provided with Full Proposal

https://business.esa.int/funding/digital-transformation-and-green-economy

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Q&A

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THANK YOU!

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