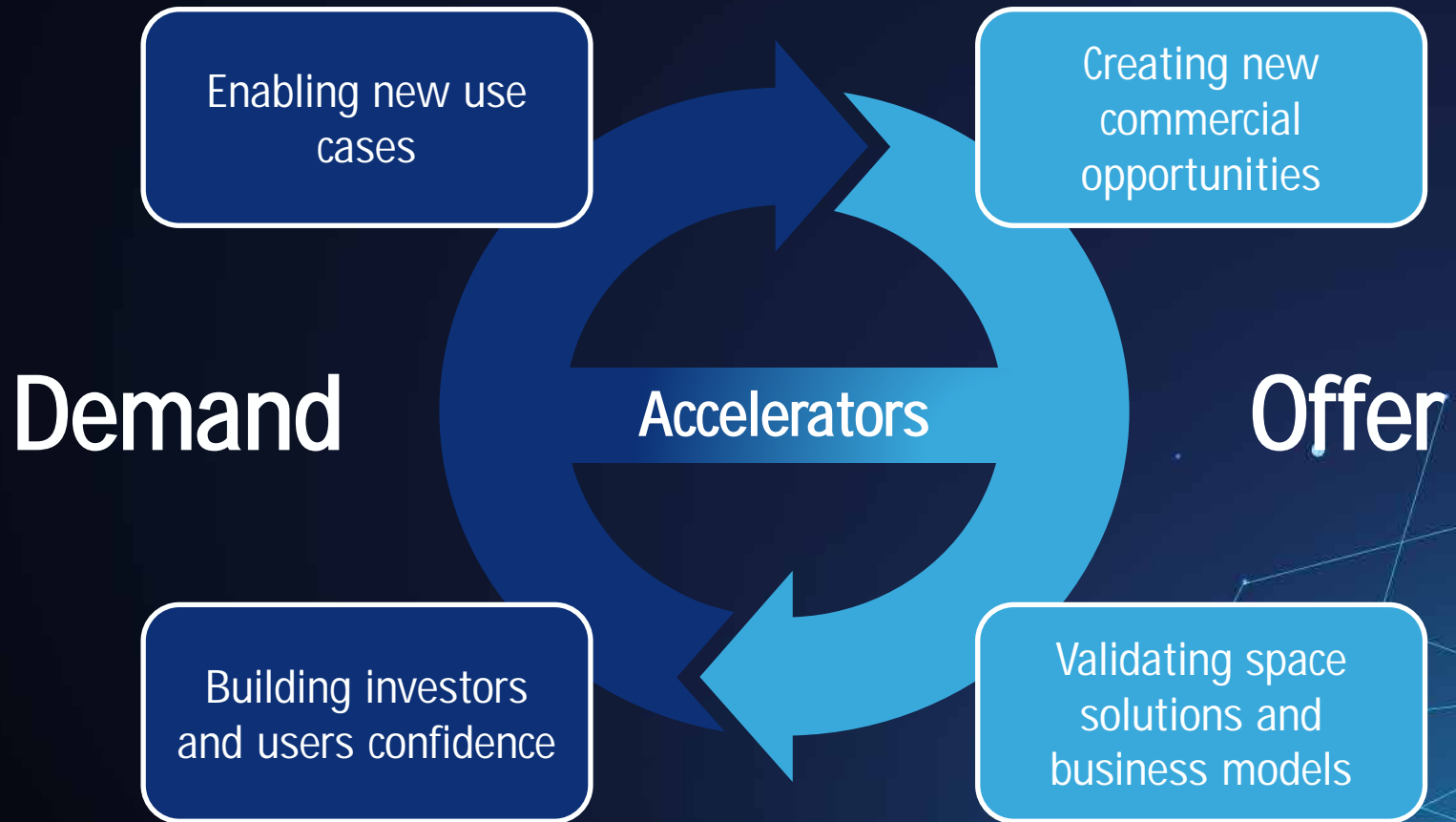


# The ESA Accelerators

Isabelle Duvaux-Béchet, Senior Advisor, Accelerator Core Team, ESA

Eurisy Members' day, Brussels, 12 December 2023

# Virtuous Cycle





# 6 November Council at Ministerial level

## *Draft Resolution on Lifting Europe's Ambitions for a Green and Sustainable Future, Access to Space and Space Exploration*

2 | The ambition of realising the full potential of space.  
Towards a green, sustainable and safe future.

2.1 | On Earth

13. SUPPORTS strengthened Agency efforts towards (a) engaging with Green Transition stakeholders at national, European and international level, ENCOURAGING them to join the [Space for a Green Future Accelerator](#) [...]; and (b) exploiting Earth observation data, [...], and developing novel instruments, missions and initiatives [...]; and SUPPORTS the engagement of stakeholders in decisively acting on crises facing Europe, contributing through the [Rapid and Resilient Crisis Response Accelerator](#) and the delivery of a comprehensive gap analysis to Member States;

# 6 November Council at Ministerial level

## 2.2 | In orbit and beyond

14. UNDERSCORES that a sustainable and safe space environment is the indispensable condition for continuing humankind's exploration and use of space; [...], ACKNOWLEDGES that the Director General has followed up on the call of Council for implementing a Zero Debris approach for ESA's missions, through the establishment of a policy and standard of the same name, and for encouraging partners and other actors to pursue similar paths, inter alia through the **Protect Accelerator** and the introduction of the Zero Debris Charter on the occasion of this Space Summit; [...];

15. CALLS UPON the Director General to (a) advance the protection of critical infrastructure through the Agency's expertise in space safety and its contributions to mitigating adverse effects of space weather, supporting the establishment of operational space weather services in Europe;

# Concept of Action

## Accelerators

*Partners set common goals and provide building blocks*

*Policy & regulatory instruments / Innovation & financing programmes / Infrastructures, systems, data & services*

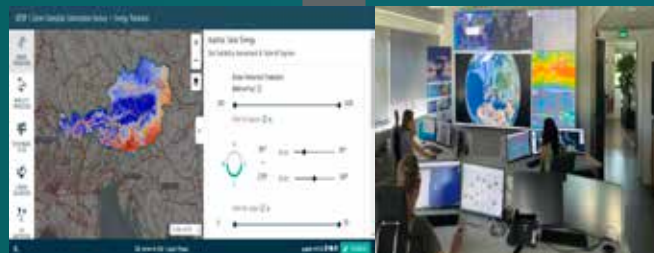
### PATHFINDER

*Identify new use cases*



### SEED

*Develop and demonstrate new solutions*



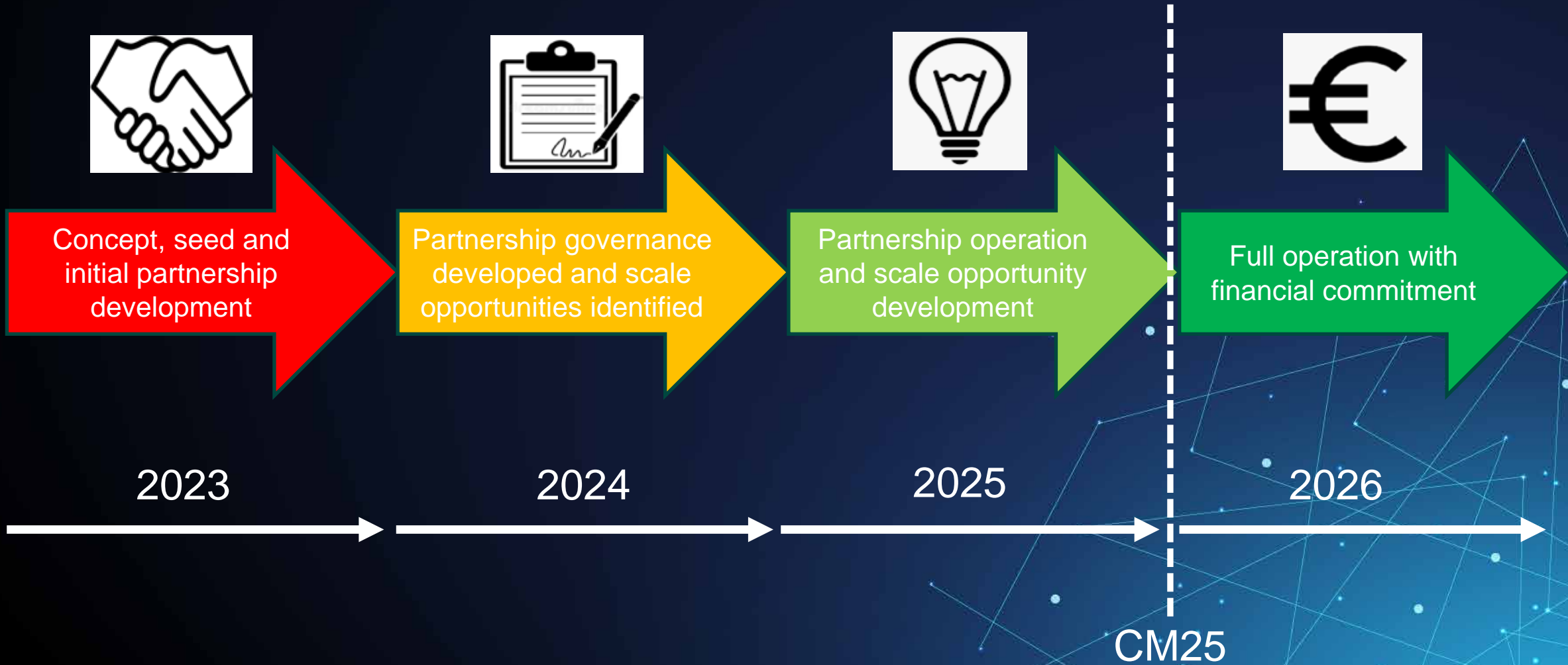
### SCALE

*Increase the impact of proven solutions*



Commercial & funding opportunities to support innovation and business development around new space solutions fit for global challenges

# Accelerators: generic development plan



# Space for a Green Future

## Space bends the Curve

The Space for a Green Future Accelerator is a **co-governed & independent non-profit partnership of Green Transition actors united under a common banner**, engaging governments, businesses, multilateral institutions, civil society groups, end users and citizens to develop practical space-based solutions supporting Carbon Neutrality and greening of society by 2050. We partner with stakeholders and users, aggregate the priorities of Green Transition sectors and seed solutions that address the real needs. We accelerate the use of space by **mobilizing resources and scaling solutions** to full sectorial and global levels.



# The Problem: Green Transition & Global Interlinked Challenges

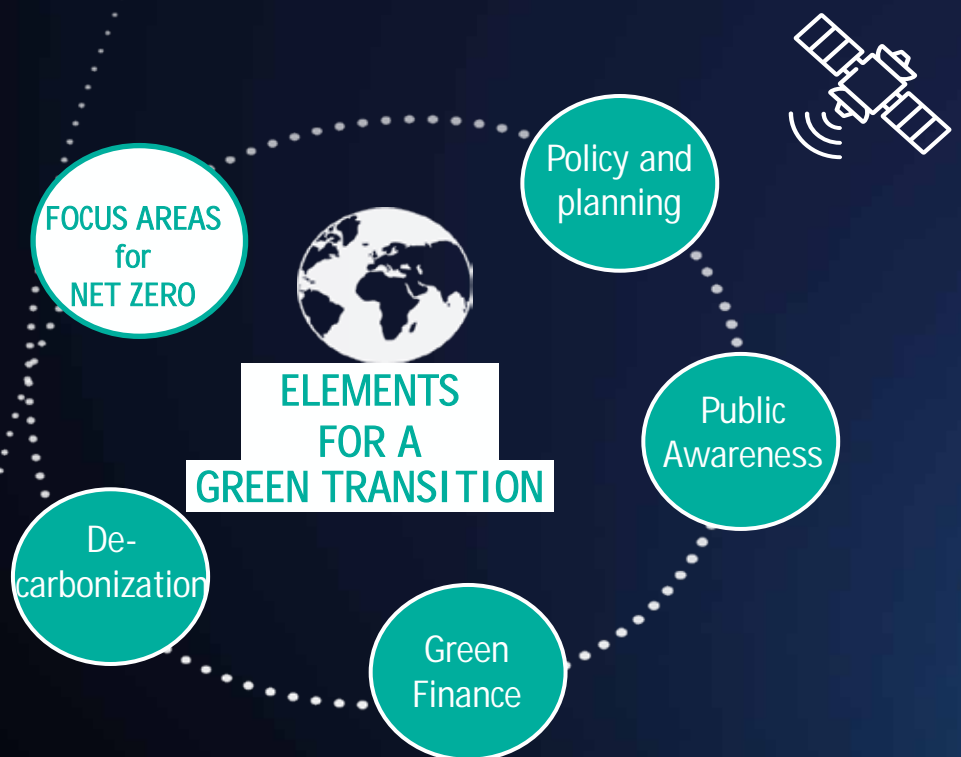
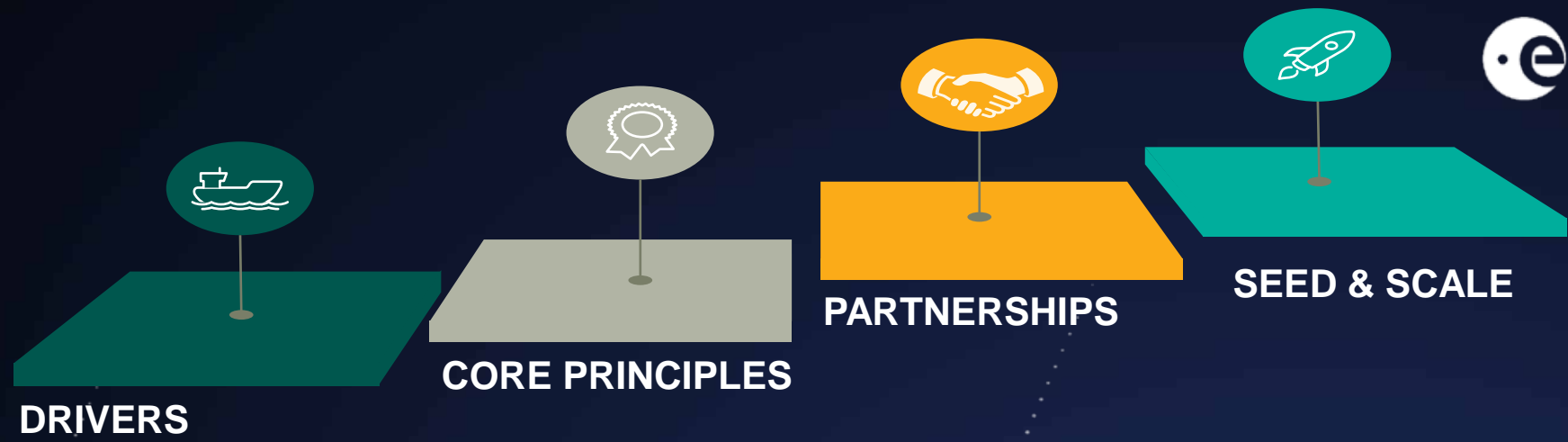
- Climate
- Pollution (air, water, land)
- Biodiversity
- Food Production
- Energy Supply
- Traffic & Mobility
- Urban Development



# S4GF Vision



- 2050**  
Achieving net-zero carbon emissions
- 2030**  
Benefiting billions of users via multiple operational systems
- 2025**  
Upscaling services through partnerships
- 2023**  
Developing upstream technologies and downstream services





# S4GF Partners Consultation Workshop 28/09/23



- Key partners confirmed their participation including green policy makers, financial institutions, sectorial representatives, etc.
- Outstanding partners interest in leveraging space in support of green objectives and broad range of cooperation opportunities
- Next collaborative steps confirmed:
  - Ø Establish a formal partners group
  - Ø Finalise the cooperation framework
  - Ø Prepare a joint strategy and cooperation plan
  - Ø Define joint priorities and targets, and relevant instruments to be utilized
  - Ø Initiate immediate cooperation opportunities
  - Ø Organise the onboarding of new partners



First meeting of S4GF Working Group 12/12/2023



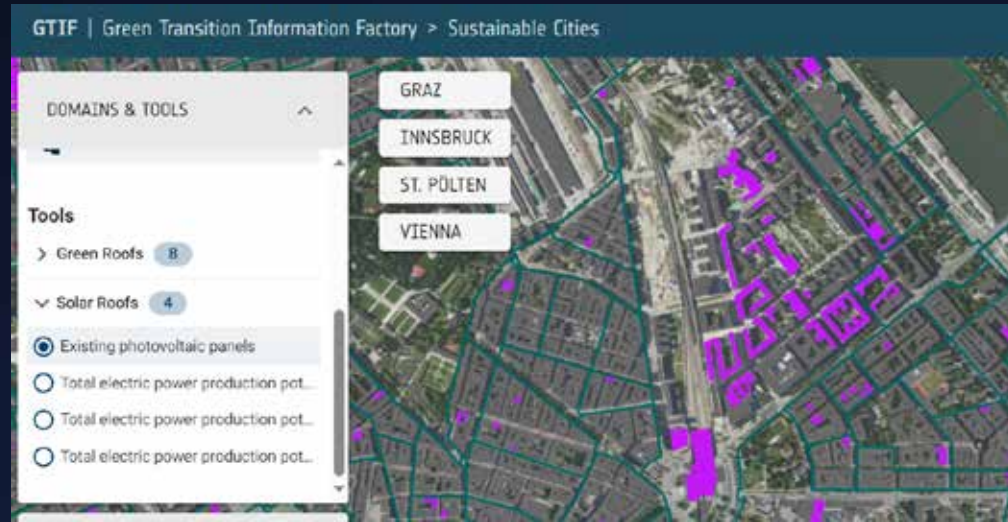


# S4GF Accelerator



## GTIF

- Demonstrator in Austria
- Other MS to join the initiative
- in 2024 GTIF-Adaptation and Consolidation of Demonstrator



## Decarbonization

- Energy Task Force
- Task Force on Space for Smart and Green Cities
- Space for maritime sustainability
- ...
- Update of the “Green dossier”





# Commission joins forces with ESA on climate action from space

**EUROPEAN COMMISSION – ESA**  
Joint Initiative on Space for Climate Action



Josef Aschbacher (ESA DG) and Kurt Vandenberghe (EC DG for Climate Action) unite on climate action from space  
06/11/2023



An illustration of a satellite network in space. Several satellites are shown orbiting Earth, connected by a network of blue lines. The satellites have various shapes and sizes, some with solar panels. The background is a dark blue space with stars and a view of Earth's horizon.

# Rapid and Resilient Crisis Response

The Rapid and Resilient Crisis Response Accelerator is an initiative of the Agency to enable and support stakeholders to decisively act on crises facing humanity, at a moment when it is urgent and relevant for Europe to have the necessary space enabled tools at hand for taking effective decisions and actions.

# ESA – Stakeholders



ESA supports **innovation** activities and shares associated risks with stakeholders through **programmes**



International, national, regional, local User organization



**Civil Security from Space (CSS) / R3 Accelerator**



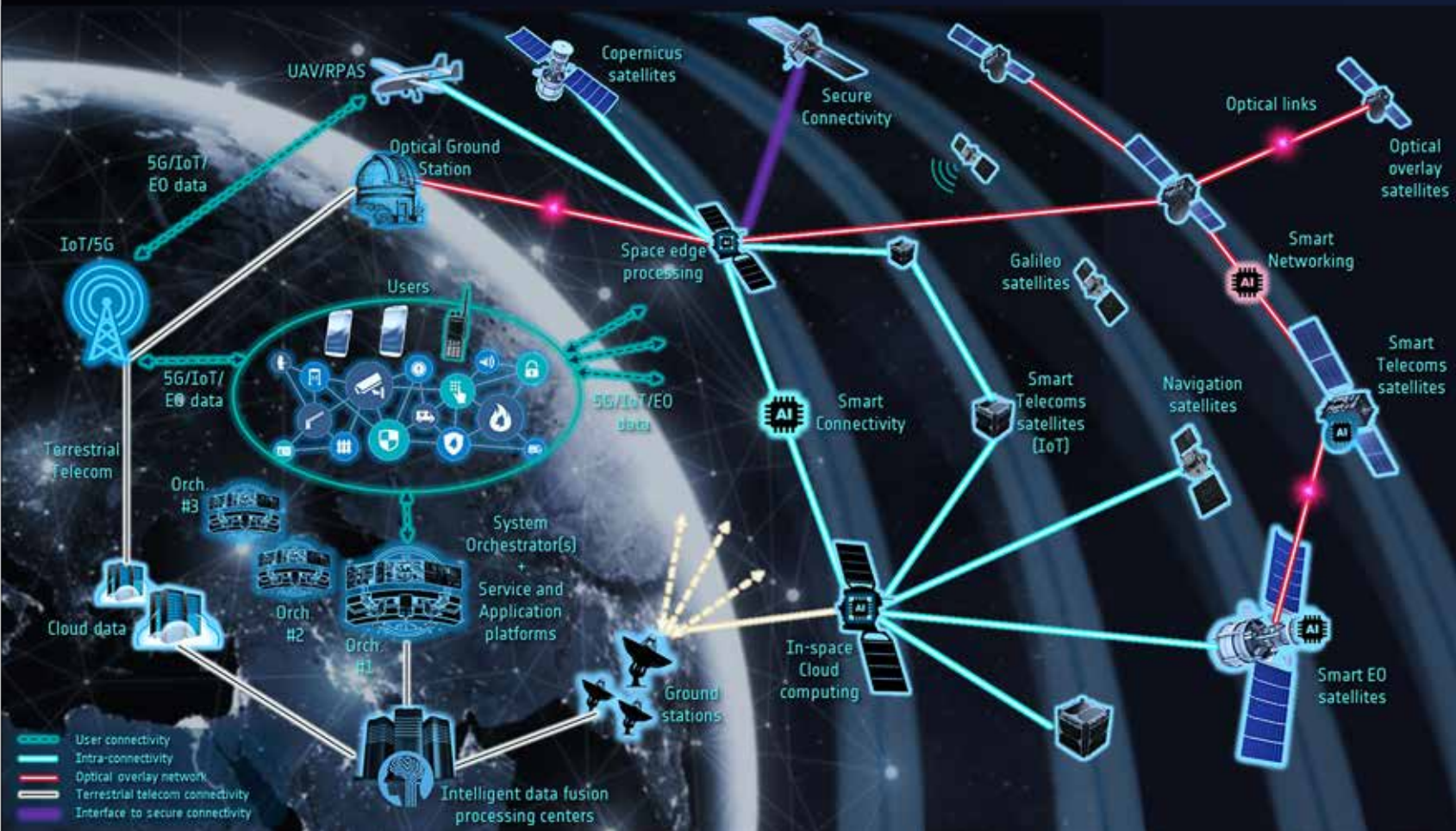
Member State Representatives



Industry Research Institution



# VISION – SUPPORTED by MULTIPLE SYSTEMS



ESA UNCLASSIFIED – For Official Use



→ THE EUROPEAN SPACE AGENCY



# DELIVERING – 3 Pillars of Action



## Partnering End-Users

- Solution adopters
- Solutions Integrated into working environment of Users
- We are engaging with Partners



## Network Infrastructure

- Global network of secure Crisis Hubs
- A bridge of connecting capabilities to end Users
- We are looking for solutions providers



## Contributing Missions

- Leveraging on commercial, institutional systems
- Certified to comply with system interfaces, security levels, performance and quality
- We are looking for contributing capabilities both in space and on ground



# The Hub Network – Enabling access to space



## Access

Hubs implement an ecosystem of accessible data, assets and services

## Integrated

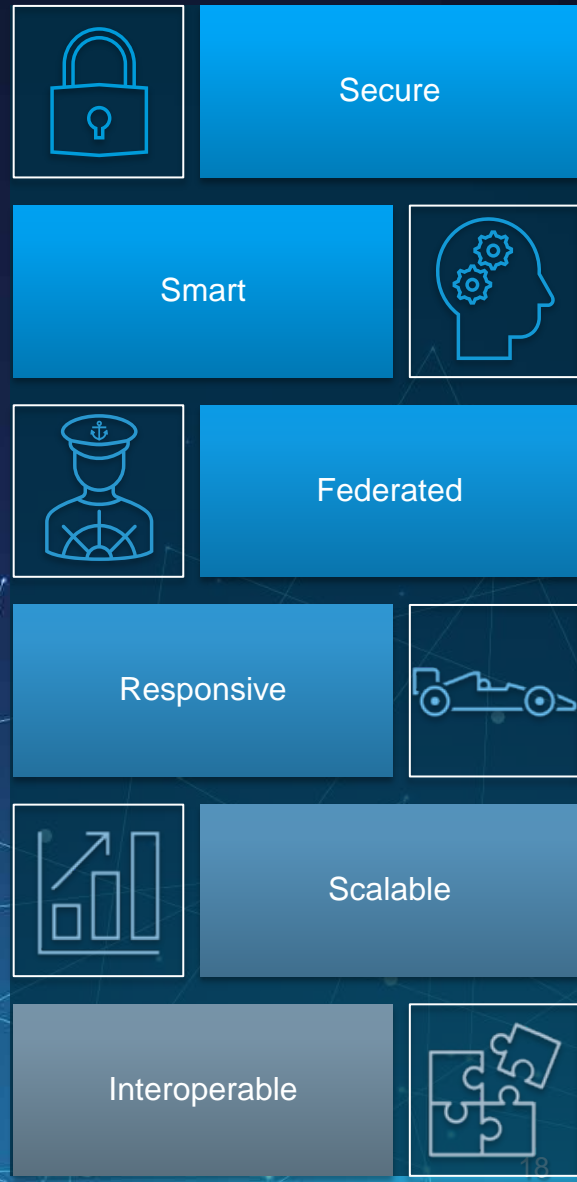
Hubs integrate into the working environment of the Users & Operators

## Service Driven

Hubs can implement multiple use-case specific applications & services

## Scale-up

Hubs enable the scale-up and commercialisation of Space capabilities



# SERENITY - A Collaborative Approach



Civil Security and Crisis Response Network Infrastructure for Society

## A Hub Network



# CSS Projects – R3 seeds to be Developed & Demonstrated

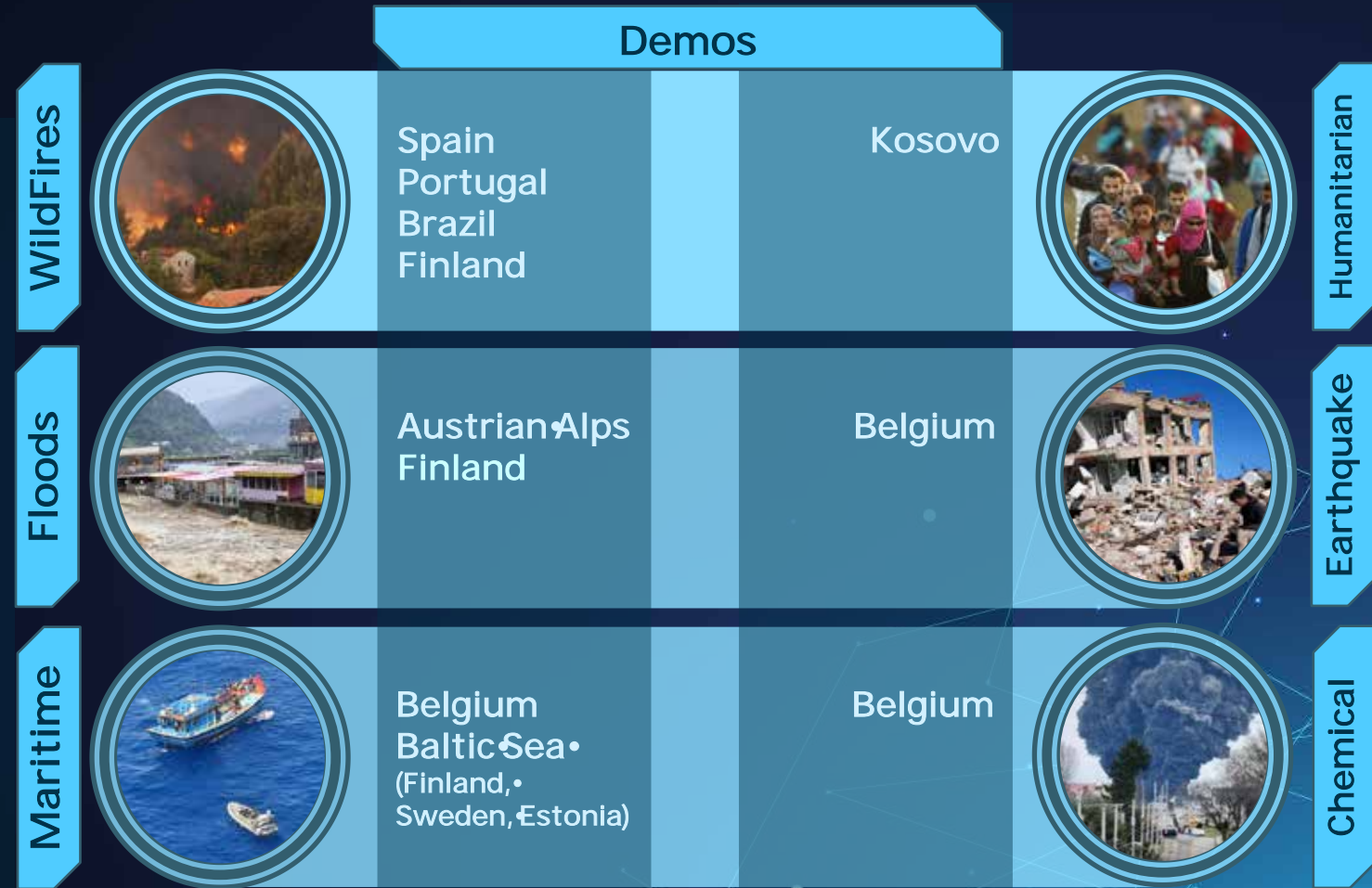
## CSS call for proposals open

- 3 Partnership Projects approved
- 7 Participating Member states
- 15 Industrial Partners
- 15 Users engaged
- 6 Use-cases to be developed
- 11 Demonstrations planned

Contracts targeted 4Q23-1Q24  
Outputs in 24-36 months

## A fourth Partnership was just approved

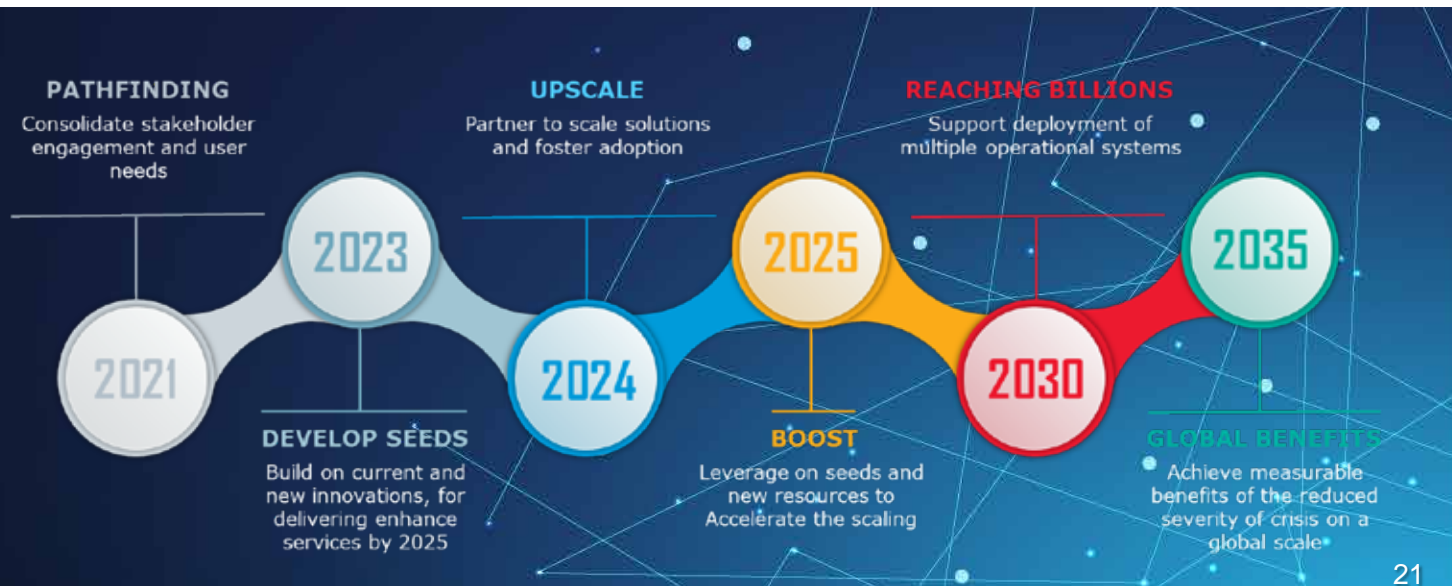
- 4 Participating Member States





# R3 Accelerator Partners Workshop – 06/10/23

- 40 external attendees from 17 International Organisations
- 14 International Organisations declared strong interest in R3 Accelerator
- Workshop marks **kick-off** of consultation process with partners
  - Develop R3 workplan
  - Agree R3 collaboration framework



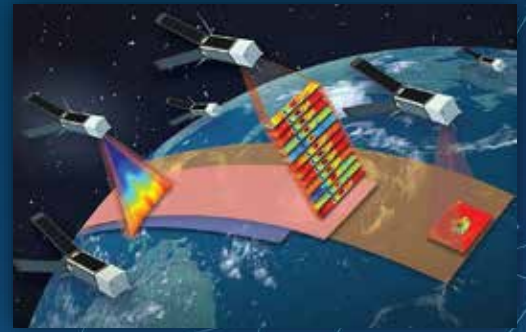
# CONTRIBUTING MISSIONS



- ü State-of-the-art situation awareness hub & training centres
- ü Contributing facilities to the SERENITY system
- ü Contributing Polish EO satellites



- ü Atlantic constellation as contributing mission
- ü Spain, Portugal and UK partners supporting SERENITY
- ü Discussions planned with Greece



- ü Eutelsat/OneWeb seeking to partner with SERENITY on Satcom and EO contributions
- ü KSAT interested to contribute Ground infrastructure, Maritime and Polar monitoring systems



# Joining CSS / R3 as a partner

The **User Consultation Group (CSS-UC)** shall be composed of entities representing user needs, providing a voice to the community. The Partners of CSS-UC can be from any country (to be evaluated by ESA if not coming from a Member, Associate or Cooperating State).

The **Industry Association (CSS-IA)** brings together industrial players from ESA Member, Associate or Cooperating States, to foster a collaborative spirit between solution providers, where the concepts of interoperability and compatibility are nurtured, and leading towards the CSS 2035 vision of a federation of systems.

**CSS Participating States** (December 2023): AT, BE, CZ, DK, EE, FI, HU, PL, PT, RO, SV, ES, CH. Entities from other ESA States will be enrolled as Associate.



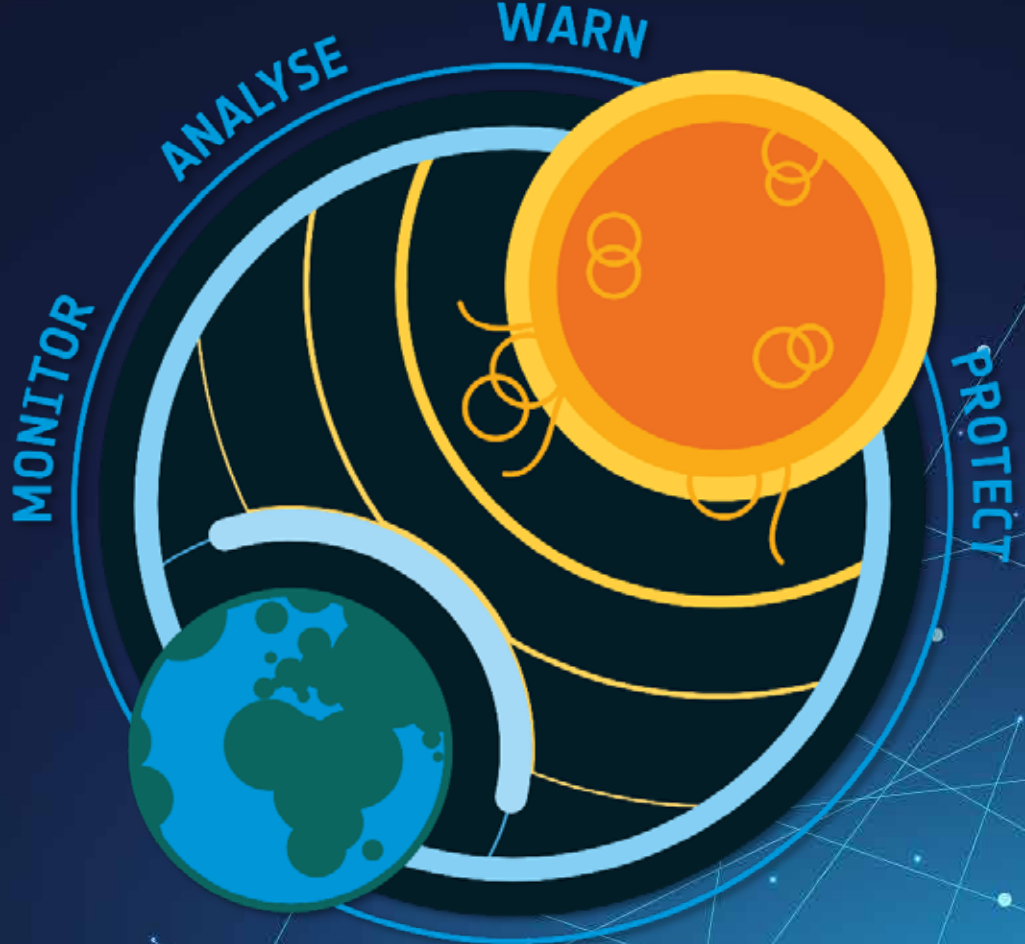


# PROTECT

The PROTECT Accelerator is an initiative of the Agency to contribute to safeguarding and protecting European assets from space debris and space weather interferences, in synergy with relevant national, EU or other European initiatives.



# Protection of Space Assets: Elements





# Zero Debris Charter Launch: 06/10/23

## ZERO DEBRIS CHARTER

Towards a Safe and Sustainable Space Environment

### Preamble

**We, those working towards a zero debris future,**

*Commending* the efforts of the actors of the European and global space sectors committed to the advancement of space safety and sustainability;

*Acknowledging* the encouragement given to the European Space Agency by its Member States to implement a Zero Debris approach, by which it aims to stop generating space debris by 2030;

*Recognising* the role of the European Space Agency in the initiation and facilitation of this Charter, resulting from an open and collaborative process;

*Recalling* that international and national laws and regulations provide for the sole binding rules applicable to the conduct of space activities;



## Open for declaration of intention to sign: 6/11/23

[ESA - World-first Zero Debris Charter goes live](#)

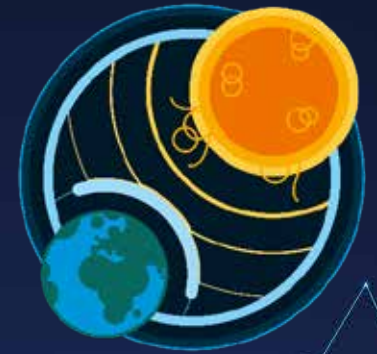




# Arctic Space Weather Service demonstration



Temporary and limited demonstrator with no tool development



**Arctic Space Weather pilot project**

Demonstration of Space Weather Service Network services with Arctic users

- ü Collecting feedback on SWE impacts
- ü Demonstrating benefits of SWE services





# Partners expected for each Accelerator!

#SpaceAmbition  
#AccelerateSpace

[www.esa.int](http://www.esa.int)