

# Business Applications

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# Business Applications: space-enabled services

BASS aims at reaching **commercial exploitation of space assets, data and capabilities** addressing **technical feasibility and business development**. This includes the development of **operational services for a wide range of users** through the combination of different systems, and **support in creating viable companies as well as to existing companies**





- ❑ To advance the **growth and global competitiveness of the space downstream and new space industries** of the Participating States;
- ❑ To explore **a wider combination of space techniques, tools and technologies**, possibly together with terrestrial systems, multiplying the range of space-dependent services and products that can be delivered to customers;
- ❑ To attract **a wider range of actors into the end-to-end space value chain**, able to generate innovative services and products that will be sustained through private investment and user funding sources;
- ❑ To attract **a wider range of users** of services based on space technology, especially in sectors of major economic importance;
- ❑ To **attract actors starting new businesses** implementing space technologies in innovative ways; and
- ❑ To promote the emergence of space-based sustainable services addressing: **societal challenges, UN Sustainable Development Goals and the green transition**

## SOCIO-ECONOMIC

Social, green value and economic sustainability



## SPACE USE

Utilisation of space in new markets and user communities



## INDUSTRY COMPETITIVENESS

European Industry competitiveness on global space and non-space markets



# Sustainability elements of space applications



**PEOPLE**  
Social value



**PLANET**  
Green value

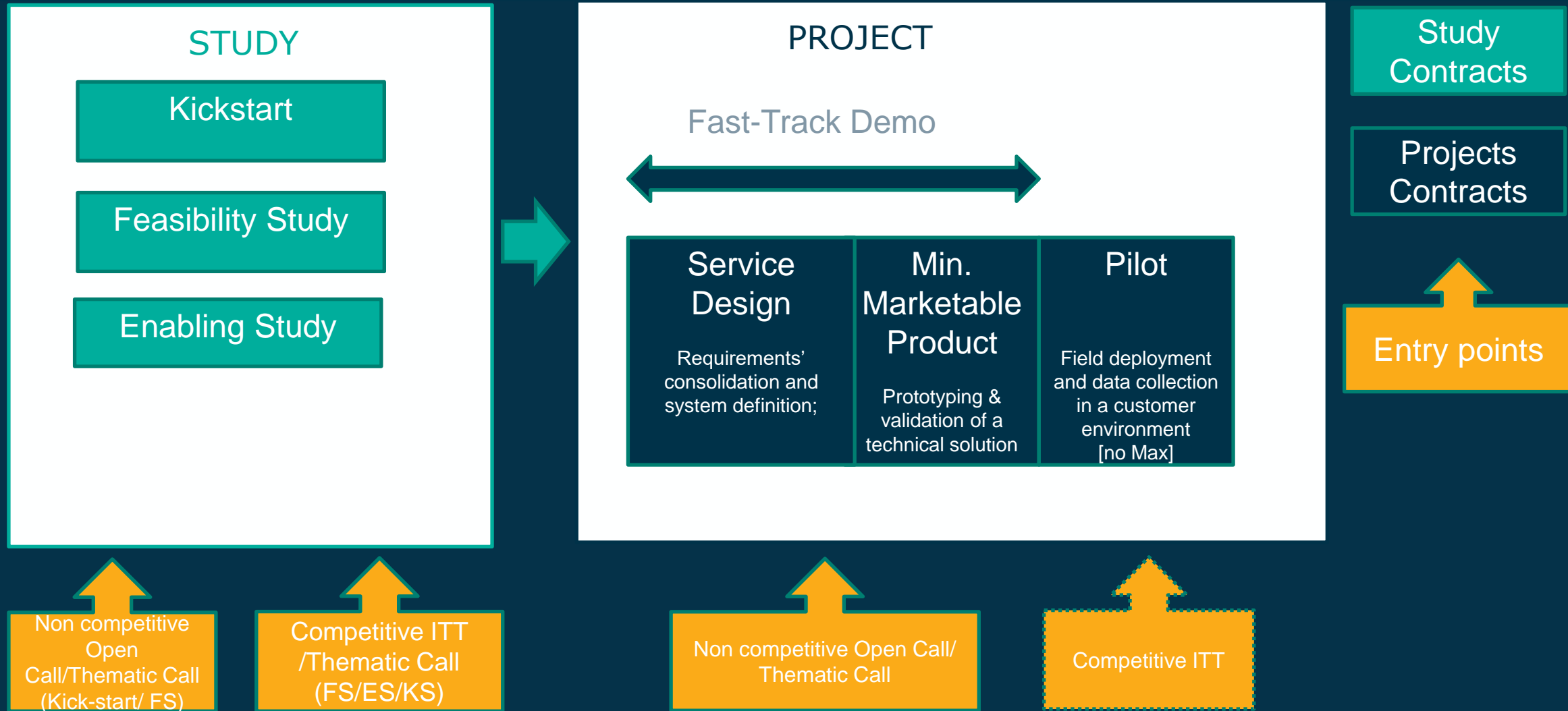


**PROFIT**  
Commercial value



**ARTES BASS:**  
>75% SMEs  
>33% Newcomers

# Implementation approach



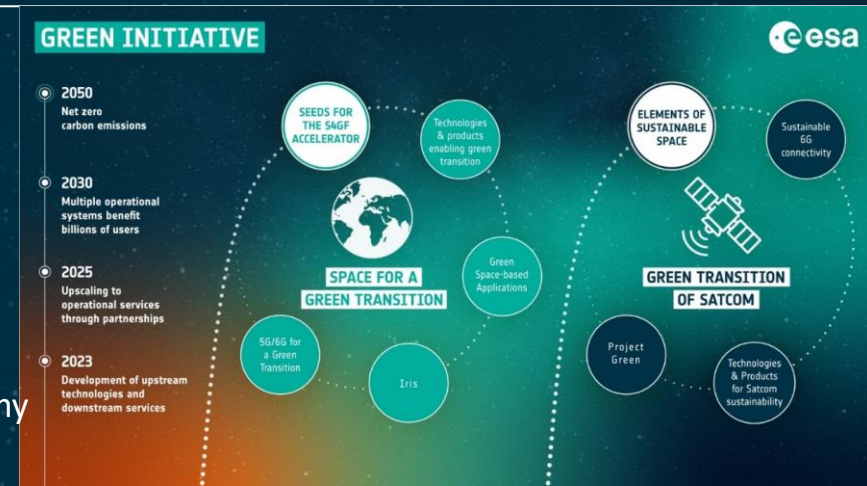
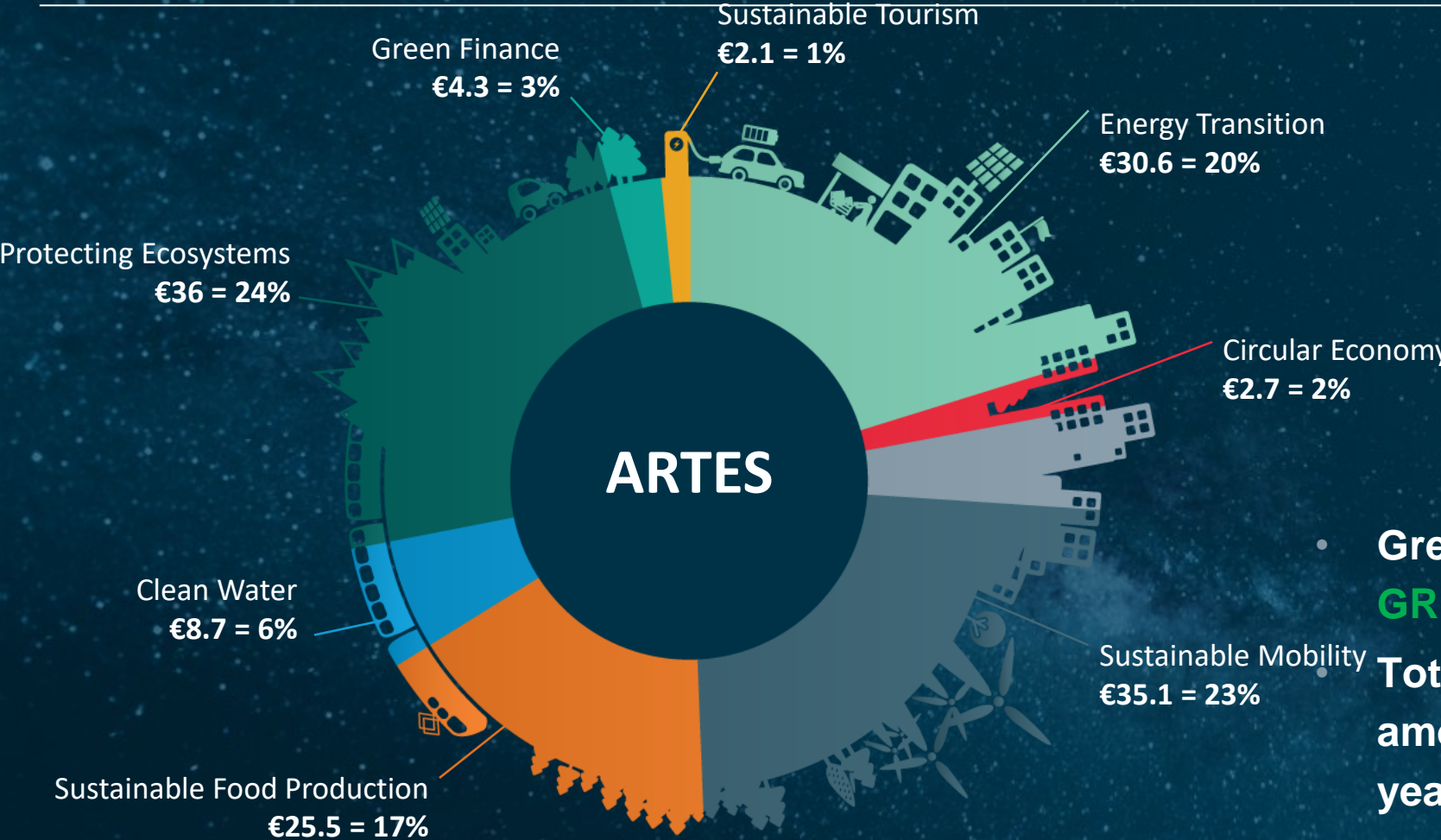


# Cooperations





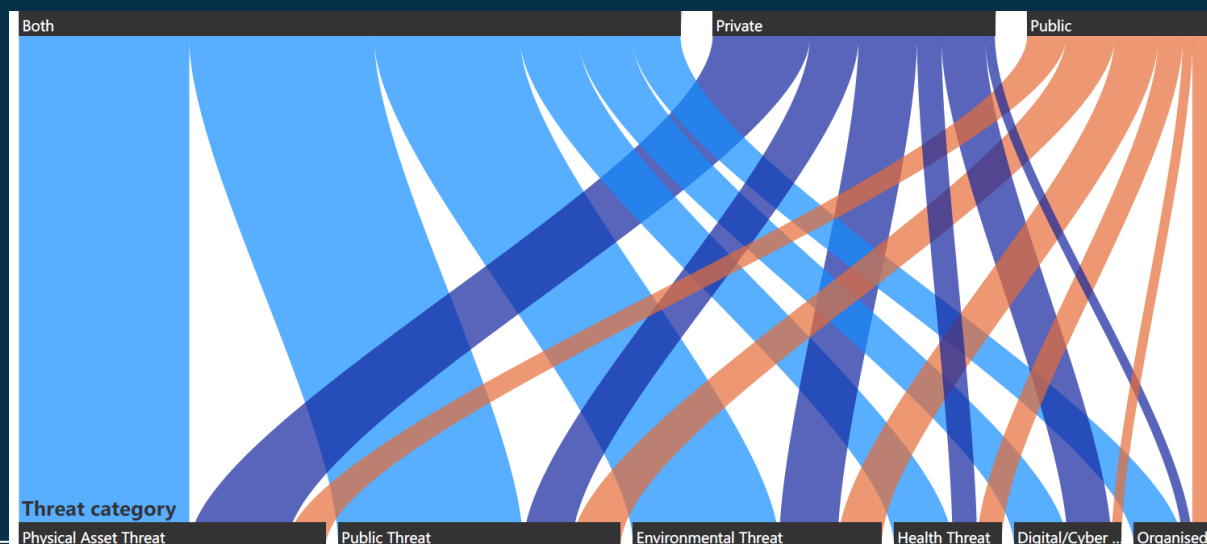
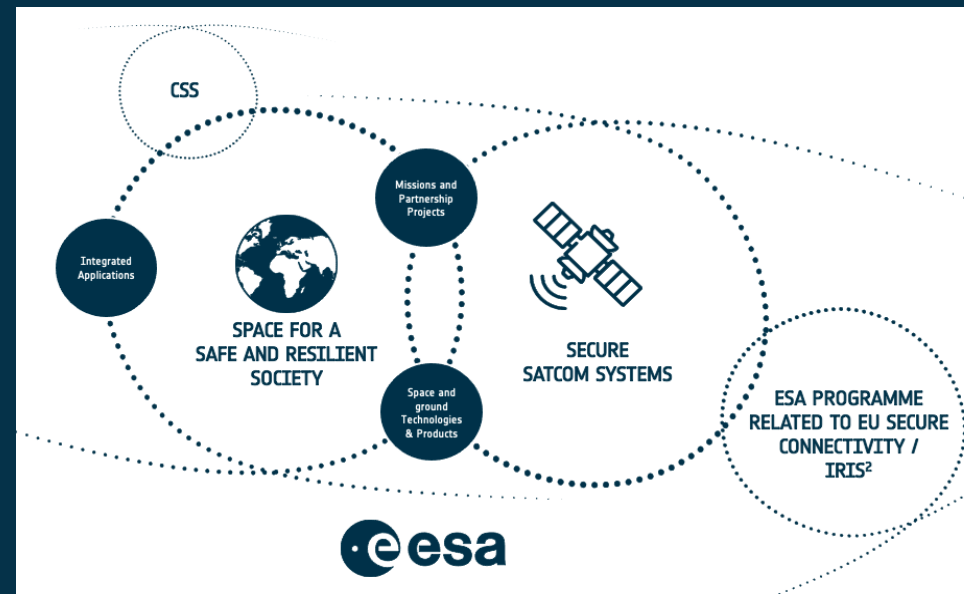
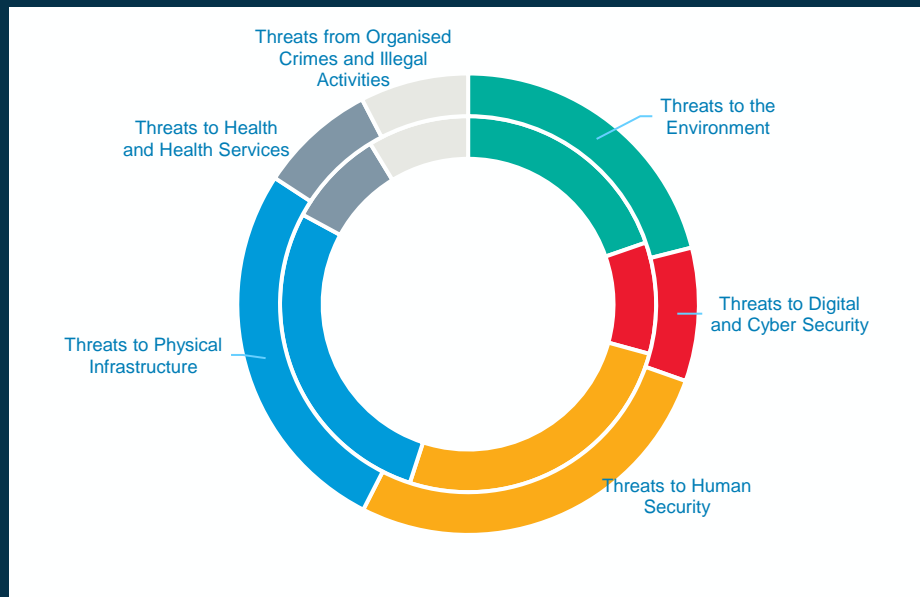
# Creating Green Value



- Green Dossier 2<sup>nd</sup> edition. Twice as **GREEN**
- Total investment from NDs and Industry amounts to 150 MEUR over the past 12 years
- €70M in 139 new activities in just 2 years
- Contributing to the S4GF Accelerator



# Protecting People and Assets through Safety, Security, Resilience and Rapid Response



- Total investment from NDs and Industry in safety applications amounts to 172 million EUR (around 200 activities!) since 2012
- over 50% of activities address both private and public sectors
- Dedicated initiatives for COVID-19 (24 projects) and Ukraine conflict (14 proposals)

# Creating **Social value** and inclusiveness

Innovation and digital economy

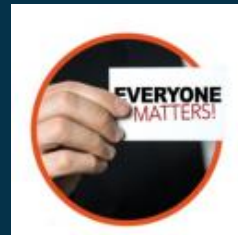
Education and reskilling



Sport and Well-being



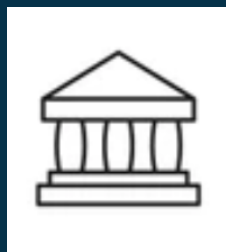
Inclusive growth



Food security



Culture



Health





# A wealth of opportunities

## Green and sustainability

## Society and Inclusiveness

## Safety and Resilience



<https://business.esa.int/>

Home » Funding » Open Competition » Biodiversity Kick-Start



<b>ACTIVITY</b>	Kick-Start Activity
<b>OPENING DATE</b>	02-09-2019
<b>CLOSING DATE</b>	25-10-2019

## OPPORTUNITY

Biological diversity is the variety of life found in any of, or across, Earth's ecosystems. It is fundamental to life on Earth since it provides oxygen, food, clean water, fertile soil, medicines, shelter, protection from storms and floods, fibres for clothing, a stable climate and even recreation. It is estimated that the services provided by ecosystems are worth trillions of dollars, more than double the world's GDP! Biodiversity loss in Europe alone costs the continent €450m a year or, 3% of its annual gross domestic product. However, the current state of biodiversity is ominous; overpopulation and overconsumption are driving a biodiversity crisis as people continue to expend resources in an unsustainable fashion. Space assets and satellite technologies, combined with advanced and innovative ways to use them, can make a crucial difference in the future of the biodiversity on Earth.

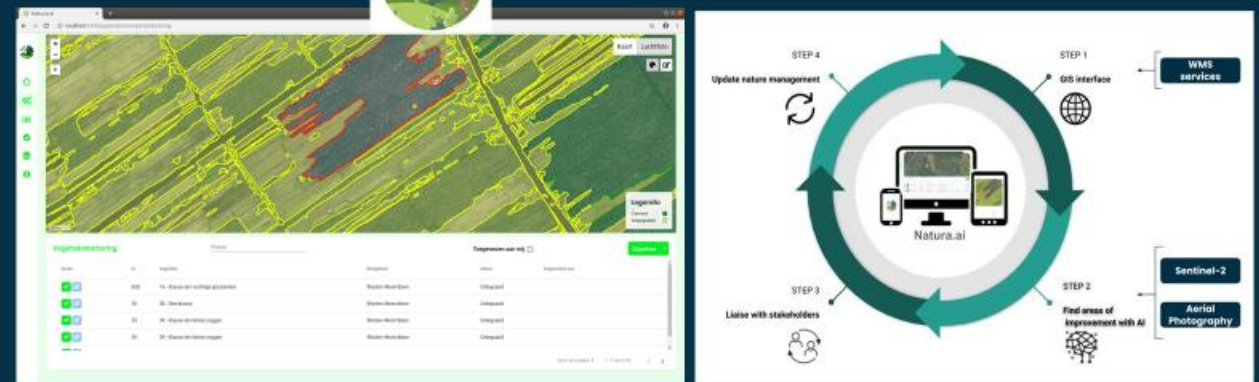
## TOPICS OF RELEVANCE

- Agriculture.** Agriculture is the largest contributor to biodiversity loss and the world's biggest driver of deforestation. Reducing the food industry's toll on biodiversity is therefore a critically important change to make for the future of the planet. Helpful developments are being implemented in two ways: land sparing (improving efficiency to intensify agricultural productivity and release other land for protection); and land sharing (improving sustainability through biodiversity-friendly farming over larger areas). For these methods to efficiently conserve, sustain and restore agricultural biodiversity, a view of the bigger picture is needed.
- Fisheries and Aquaculture.** Many 'modern' fishing methods, implemented on a global scale, have devastating consequences for ocean ecosystems and biodiversity. Overfishing, as well as by-catch and ghost fishing, diminishes the biodiversity of an ecosystem in an approach that is neither sustainable nor efficient in relation to food production. Combined with an industrial scale habitat destruction through dredging, seafloor trawling and blast fishing, this equates to a need for both large and small scale improvements in the aquaculture industry. Currently, satellite applications could revitalise country size ecosystems alongside substantial scope for positive change in the economics of the fishing industry.
- Biofuel.** Eighty percent of present day transportation fuels are derived from petroleum; including petrol, diesel, liquefied petroleum gas, jet fuel and marine fuel. However, biofuels could be both a suitable and sustainable alternative to petroleum, substantially improving climate change and biodiversity. Nonetheless, redevelopment and innovation is essential to improve on the predicaments of first generation biofuels. Possible implementations of this, spanning from waste water of farms, forestry and domestic leftovers to miscanthus grass, could redefine use of poor quality growing land. This could deliver a reduced impact on global food production and a beneficial alternative to petroleum.
- Transport Networks.** Transport networks, including roads, shipping and air routes, have detrimental effects on biodiversity. Roads fragment ecosystems, causing migration changes; ground-level ozone curbs crop yields; and hazardous fuel substances wreak havoc on marine life. Satellite applications can be of particular use in improving the biodiversity on both small and large scales, with innovations such as crossing structures (designed to help animals get safely over or under roads), more efficient routing of ships, trucks and aircraft and monitoring of emissions.

## Sentinels for Habitats (NL)



## Kick-start on Biodiversity



- The application Natura.ai uses AI combined with SateO data (e.g. aerial photography) to improve ecologists' field analyses and help them work more efficiently. Through the functionalities of Nature Management Planning and Nature Mapping Support SOBOLT automatised the process of vegetation type classification and boundary delimitation.
- This service is further delivered through an online tool in the form of a shared working environment for easy collaboration and document storage.



→ THE EUROPEAN SPACE AGENCY



→ THE EUROPEAN SPACE AGENCY



# Digitising Water Resilience - Acting on Water Stress in Basins

<https://business.esa.int/funding/invitation-to-tender/digitising-water-resilience-acting-water-stress-basins>

## Digitising Water Resilience - Acting on Water Stress in Basins

Home » Funding » Open Competition » Digitising Water Resilience - Acting on Water Stress in Basins



Credit: Curioso.Photography

ACTIVITY	Feasibility Study
OPENING DATE	01-11-2022
CLOSING DATE	28-02-2023



**CEO WATER MANDATE**

**WATER RESILIENCE COALITION**



### The Opportunity

ESA has partnered with the **CEO Water Mandate** and 30+ members of the **Water Resilience Coalition** to address the global water crisis in its three dimensions:

1. Availability
2. Quality
3. Accessibility



### The Problem

- Water is an **essential** resource to everyone on Earth
- Over the next decade the world will experience a serious **shortfall in freshwater supply**.
- Intensified **floods** and prolonged droughts are expected to worsen in the coming years



### There is a need for:

- digitisation and innovative monitoring technologies of water basin health
- continuous monitoring of the impacts of interventions.



- **SatCom** can connect data captured at basins to decision-makers more efficiently
- **SatEO** can support basin diagnostics and monitor progress on water security and resilience in basins
- **SatNav** to enable geo-referencing of in-situ data, as well as navigation and tracking of autonomous vehicles

Interconnected systems for positive impact are at least two systems, considered “isolated”, operating in a synergistic manner so that externalities are re-used or recycled creating a positive impact on the environment

## Topics of interest:

**Sector hybridisation**  
**Circularity of resources**  
**Collocated facilities**

**WEBINAR 22 February 2023 - 10:00 GMT**

- **SatCom** can connect IoT data to monitor and report on the physical parameters measured in hybrid vicinities especially during the installation and trial phases.
- **SatEO** allows the holistic monitoring of sites where solutions will be deployed and ensure that the externalities (especially environmental) are absent or reduced
- **SatNav** to locate the position of sensors that measure physical parameters within or in the proximity of such facilities.



**Open in March  
2023**

<https://business.esa.int/funding/intended-tender/sustainable-synergies-interconnected-systems-for-positive-impact> 16



# Thank you

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